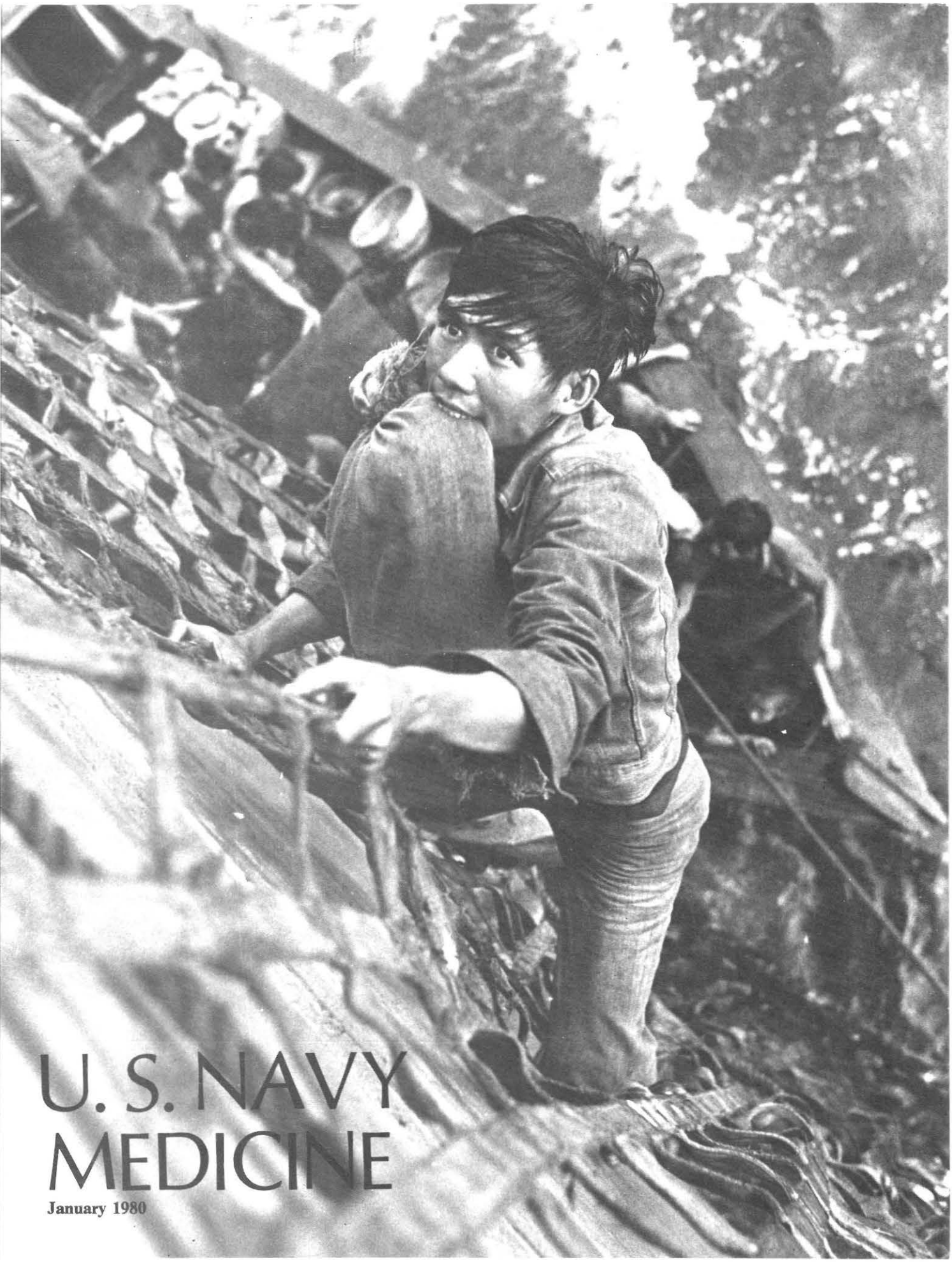

U.S. NAVY MEDICINE

January 1980

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NAVMED P-5088

U.S. NAVY MEDICINE

Vol. 71, No. 1
January 1980

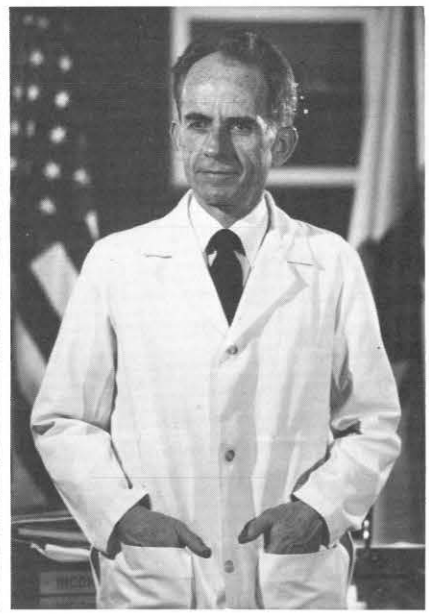
COVER: With all his belongings clenched between his teeth, a Vietnamese refugee clambers up the cargo net of the Combat Support Ship, USS *White Plains*. Such scenes have become commonplace since President Carter ordered U.S. Navy vessels to rescue "Boat People" found in distress on the high seas. The story of one such rescue appears on page 6.

Internal Review

Over the last few years the importance of internal review of resource utilization has come to the forefront of management in general and the Navy in particular. The greatest problem lies in how we define this vital management function.

SECNAV Instruction 7510.8 prescribes the Navy's policy on internal review. In general terms, internal review is any special study, analysis, or investigation directed at detecting inefficiencies or improprieties in the use of a command's resources. Internal review is a function performed within a particular command at the direction of the commanding officer. This is in contrast to internal audit, which is a function of the Naval Audit Service and is internal to the Department of the Navy. Internal review has been traditionally applied to an examination of the use of financial resources, but it should more appropriately be used to examine the use of all command resources whether personnel, supplies, equipment, facilities, dollars, or any other resource. Furthermore, proper internal review programs will interact with quality-assurance and risk-management efforts for proper administration of the entire command.

In these times of austere resource allocation, it is critical that each of



us makes better use of resources. Internal review is a tool that can help to accomplish this objective. If used properly, this tool can enable us to take a fresh and objective look at ways of improving efficiency and protecting against the misuse of vital resources.

As with any program, internal review itself requires a dedication of resources. While this may be seen as a limiting factor, we must be cautious not to overlook the potential for long-term savings and efficiencies that can result from an effective internal review program. It would be ideal if BUMED could provide each command with additional assets to increase its internal review staff; unfortunately, that is not possible. However, as resource managers, we must never neglect internal review simply because it might not provide immediate benefits; the potential for long-term benefit is significant.

I urge all members of the Navy Medical Department to examine their roles in insuring that our vital resources are used efficiently and that proper emphasis is placed on internal review to improve management effectiveness.

W.P. ARENTZEN
Vice Admiral, Medical Corps
United States Navy

Scenario of a Mass Casualty Drill

At 1300 hours on 23 Aug 1979, a civilian passenger airliner with 36 persons on board crashed into a church parking lot, spreading bodies and wreckage over an area of one-half acre.

The above described information was the only input given to test the disaster preparedness readiness plans of the Naval Hospital Whidbey Island, Whidbey General Hospital, Naval Air Station Whidbey, and the township of Oak Harbor.

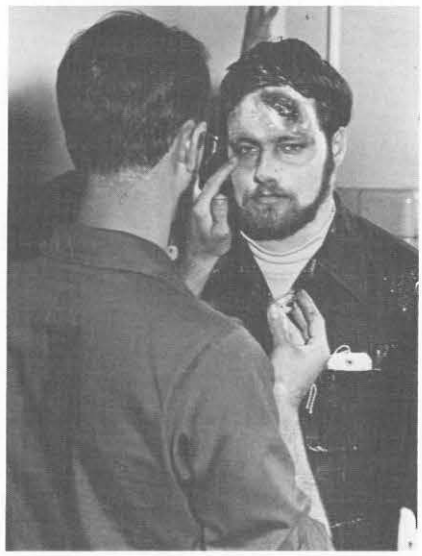
Shrouded in a cloak of secrecy, a plan had been formulated to test the disaster preparedness readiness plans of both the civilian and military communities of Oak Harbor. Through the auspices of the Oak Harbor Mayor's Office, a select group of civilian and military personnel set the stage for the implementation of the drill. It had been agreed that the time and place of the drill would be confidential and that the drill would utilize the resources of both communities.

Background

A total of 31 military personnel reported for a "work party," having no idea what lay in store. Two hours prior to the scheduled commencement of the drill, these "victims" were outfitted in moulage wounds to simulate actual casualties and coached on the roles they were about to play. Their instructions included moaning, screaming, and acting out the part commensurate with their "injuries."

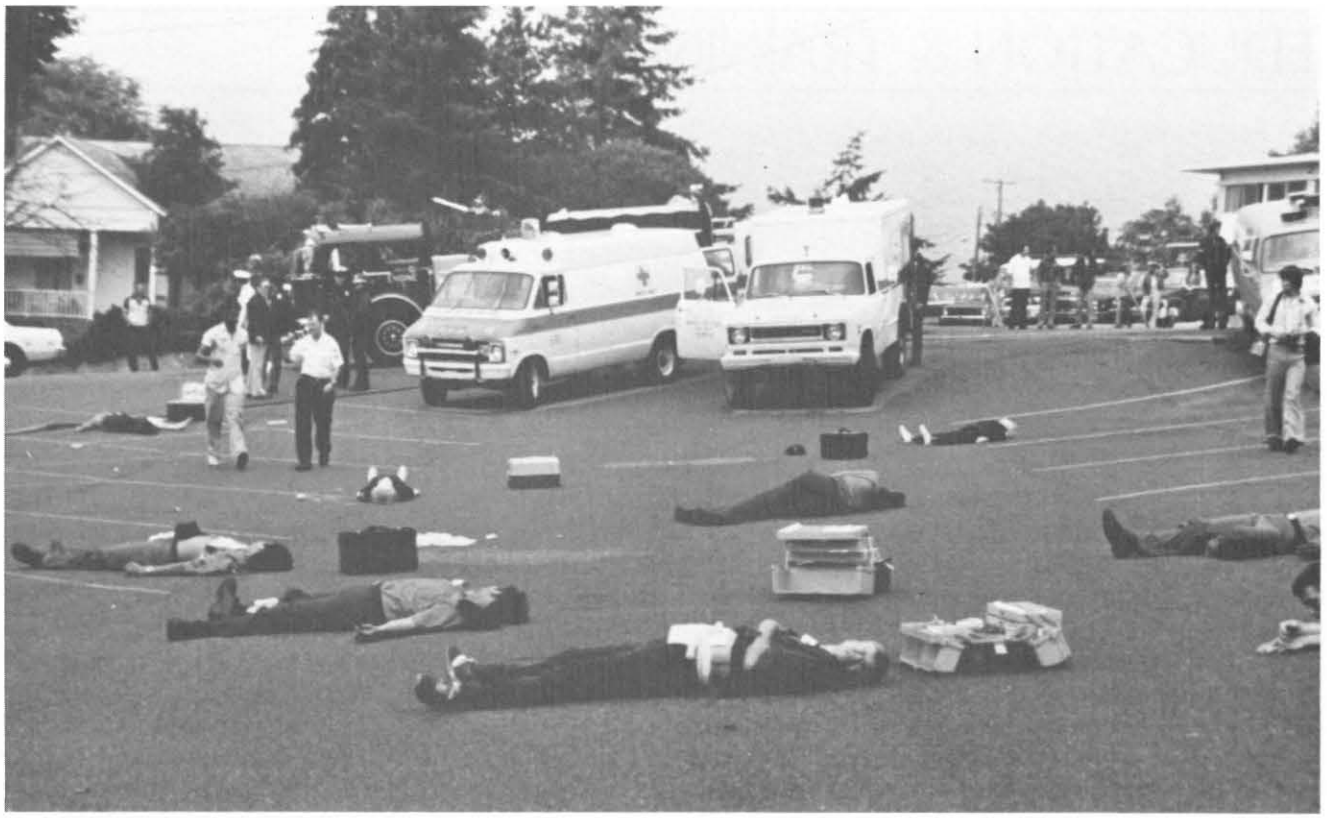
At 1259 hours, a bus arrived at the Methodist churchyard in downtown Oak Harbor and the "victims" were spread throughout the area. One minute later, a phone call was placed to the Oak Harbor Police Department informing them that a simulated plane crash had occurred with many casualties and a great deal of wreckage at the churchyard location. It was emphasized that this was a drill.

The first to arrive on the scene was an Oak Harbor Police officer. He verified the situation and notified his dispatcher. Within two minutes, road blocks had been established, fire-fighting equipment was on the way, and both the naval and civilian hospitals were notified that a disaster had occurred. Both hospitals immediately dispatched ambulances to the scene. The on-scene commander at the disaster site requested and received military security and fire department backup units. Through the use of civilian and military vehicles on the scene, a mobile command communication center was established. Triaging of patients evolved within minutes after the drill began as both military and civilian emergency medical technicians worked side by side to determine the priorities of the injuries and arrange for transportation of the emergent patients. Civil Defense personnel ascertained the availability of bulldozers, cranes, and other heavy equipment in the event it may have been necessary to extricate victims from the wreckage. Vital personnel were recalled and both hospitals immediately launched into the respective internal disaster preparedness readiness plans. This all occurred simultaneously within 15 minutes.



Patients acquire their injuries via a moulage kit.

As each hospital began to receive casualties, and it became apparent that additional transportation from the crash site to the hospitals would be required, a request went out for a Search and Rescue helicopter from Naval Air Station Whidbey. The copter then picked up several patients who had been evacuated from the crash site to a nearby football field. In a test of their helicopter recovery techniques, SAR then delivered these patients to both hospitals.



Crash "victims" await medical evacuation.

The drill, secured two hours and 45 minutes after its activation, was the first time both military and civilian agencies of this area had pooled their resources to handle such a disaster. Each participating agency provided input for a centralized operational critique. The following are the lessons learned from this invaluable exercise:

• **Communications**—A common net which would enable both civilian and military personnel to communicate is paramount. The present system does not allow civilian and military ambulance crews to speak with their counterparts because of frequency differences. A suggested mode is the utilization of HEAR/EMS communication frequencies.

• **Uniform Casualty Identification Tag**—There existed a need to have one common casualty identification tag which could be used by both the civilian and military communities at the on-site triage area. A suggested method is a tagging system which color codes emergent casualties and their priority of transportation. This system appears extremely promising and, if approved by both agencies, would be uniformly adopted by all their emergency vehicles.

• **On-scene Commander**—At the crash site, there was confusion in identifying the authority in charge of overall operations. A definite need existed for some form of immediate and obvious identification. A suggested mode of immediate identification would be the wearing of an obvious vest and/or cap denoting "On-Scene Commander."

• **Medical Response Team**—It was noted that as emergency vehicles were loaded with patients and dispatched from the scene, a lack of medical personnel and materials existed. A suggested remedy to this dilemma would be a permanent team of medical personnel and materials that could be dispatched to the emergency site during the initial phase of the disaster. This team would triage patients on-site, transport by priority, and provide a liaison between the military and civilian hospitals.

In summary, this disaster drill, conducted in conjunction with our civilian counterparts, assessed and evaluated our joint responsiveness and resource availabilities. Though not flawless, it did provide an invaluable training tool and greatly enhanced both communities' abilities to respond to a potential disaster.

—Story by LT Francis J. Hughes, MSC, USN. Photos by PH1 Dennis Brockschmit, USN.

What's Happening to Navy Psychiatric Technical Training

LCDR David Emerson, NC, USN

Neuropsychiatric technicians in the Navy have been, and will continue to be, invaluable in the care and treatment of psychiatric patients. Their services are of paramount importance in the management of our psychiatric facilities. As with all of us, their true value is molded by their training.

In 1976 the Navy and Army joined resources at the Army's Academy of Health Sciences, Fort Sam Houston, Tex., to prepare psychiatric specialists and technicians needed by both services. In May 1976, the first Navy students began the course at the Academy of Health Sciences, and since that time, 353 have completed the 12-week program. The average complement is 20 Navy students per class.

The Academy of Health Sciences, AHS, as it is commonly called, is located on the premises of Fort Sam Houston, San Antonio, Tex., and is the largest allied health school in the free world in terms of annual student output. The usual daily student population is in excess of 5,000. This institution is affiliated with three colleges, three universities, and over 30 civilian and other governmental agencies. Two fully accredited master's degree programs are offered here in conjunction with Baylor University, one in health care administration and the other in physical therapy. The Academy of Health Sciences is a Army facility, but its faculty and students come from all the military services. The faculty is a superb collection of hand-picked personnel, in all medical disciplines, many of whom are prepared at the Ph.D. level. In total, there are 102 medically oriented courses taught by a staff and faculty of over 2,000 officers, enlisted, and civilians.

The Psychiatric Specialist's Course is designed to prepare enlisted men and women to assist with the total nursing care of psychiatric patients. This course is divided into two phases. The first six-week didactic phase is presented at the Academy. The second six weeks is in clinical, applicatory training, and is provided for Navy students at NRMC Oakland, Calif., and NRMC Portsmouth, Va. Army students remain at Fort Sam Houston, Tex., and receive their clinical experience at several hospitals in the San Antonio vicinity.

Administratively, the Navy students at the Academy of Health Sciences are assigned to an established detachment of the Naval School of Health Sciences. A Navy officer-in-charge and staff are present to assist with all administrative problems which may arise. Many unique situations occur here for the new hospital corpsman. For many, it is the first time they have encountered the different language and customs of another branch of service. For most, it is an exciting opportunity. But some find it a confusing, frustrating enigma. It is for this latter group that the NSHS detachment is able to be especially helpful by providing a Navy setting with customs and a language immediately understood, therefore, enabling students to better cope with their frustrations.

The students do not have to rely entirely on the Navy detachment for help and support. A Navy Nurse Corps officer and a Navy Psychiatric Technician petty officer are on the faculty of the Psychiatric Technician's Course. They are responsible for insuring that the Navy needs are met within the curriculum, instructing in the classroom, and providing Navy students with appropriate guidance and counseling.

The Phase I didactic instruction assists the student in acquiring sufficient knowledge and understanding of psychiatric illnesses. This enables him or her to work with psychiatric patients at a beginning skill level. Instruction is provided in human development, psychopathology, psychiatric nursing, and psychiatric

LCDR Emerson is now attending the University of Texas for graduate studies.

therapy techniques. The approach used in each of these areas is deliberately general, enabling easier adjustment to what techniques may be encountered in various hospital settings.

In the Phase II the applicatory phase, the student has an opportunity to apply the classroom principles to the actual care of patients. As in Phase I, a full-time psychiatric Nurse Corps officer and an experienced Psychiatric Technician offer help, feedback, and guidance to each student. Also, while at Oakland or Portsmouth, students become acquainted with specific patient care and administrative techniques utilized by the Navy. Upon successful completion of the 12 weeks of training, students are awarded the Navy NEC-HM 8485.

Candidates considering application for the Psychiatric Technician's rating and this "C" school course of instruction must have completed Basic Hospital Corps School and preferably gained confidence and experience through general duty. In addition, the student cannot have a history of disabling emotional or mental disorders. The student should also recognize the importance of his own attitude and personal values as they relate to interaction with patients.

To be an effective Psychiatric Technician requires a high degree of sincerity, attentiveness, and dependability. Good reasoning ability, verbal ability, adaptability and, most of all, good judgment, are essential skills in implementing the care and treatment required by psychiatric patients.

Another important element is as essential as the basic training program in the development of capable, confident NP Technicians. This is the help, guidance, and support the young corpsman receives at his/her first duty station. It is necessary that orientation programs support and build on the training program which the new graduate has completed. Every effort should be made by the staff at that first duty station to be familiar with what is presented in the basic course and to augment that basic training as they orient the new Psychiatric Technician. When this is done, further training and teaching will upgrade the technician's performance and enhance the quality of patient care.

National Patterns of Psychoactive Drug Use

In the past few years, the prescription and use of psychoactive agents have been increasingly questioned. Arguments have been advanced that the United States is a uniquely overmedicated society, that permissive use of psychotherapeutic drugs bodes a weakening of traditional moral strength of character and that physicians are contributing to the problem through overprescribing.

A series of articles based on large-scale studies sponsored by the Psychopharmacology Research Branch of the National Institute of Mental Health (NIMH) has appeared in the medical literature from 1972 through the present. These papers taken together provide a comprehensive basis for a rational evaluation of current patient usage and medical practices regarding psychoactive drugs versus alternatives such as nondrug use, alcohol and over-the-counter medications.

The general conclusions of these studies suggest that:

- use of psychoactive agents in the United States is neither unique nor atypical—in fact, the U.S. ranks fifth to seventh in usage amongst the 10 Western European countries surveyed
- physician prescribing habits are largely conservative—even cautious
- the American public has considerable reservations concerning the use of psychoactive medications
- use of these prescription agents may actually serve as alternatives to more harmful nonmedical solutions to the problem of emotional distress

Recently, Dr. Leo Hollister put the issue in proper perspective when he wrote: "The proper use of psychotherapeutic drugs is not to be measured by how many people use them, or how often, but under what circumstances and with what effects. The prudent use of psychotherapeutic drugs demands the same skills required for the use of any other type of drug: proper diagnosis, proper selection of drug, proper doses and dosage schedules, and careful clinical followup. If these conditions are met, one need not worry about whether patients are getting too much or too few of these drugs."*

—Reprinted with permission of Roche Laboratories

*Hollister LE: *JAMA* 234:942-947, Dec 1975

The Robert E. Peary's whaleboat enroute to investigate the refugee vessel in distress.

Rescue in the South China Sea

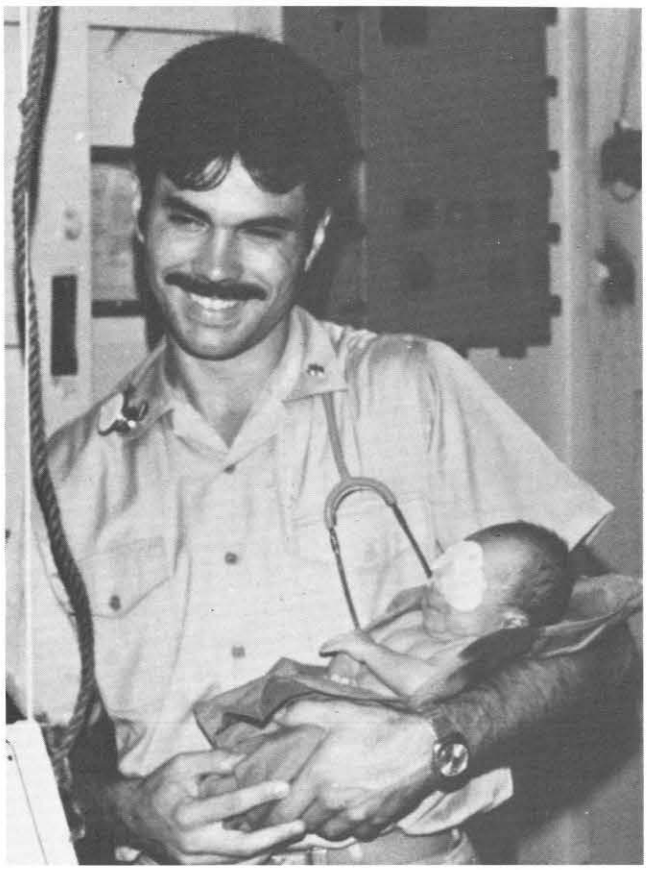
LT Richard S. Herdener, MC, USNR

Since President Carter announced on 19 July 1979 that U.S. Navy ships would actively seek and rescue Vietnamese refugees on the high seas, hardly a week has passed without some nationally publicized report of such an encounter and rescue. Usually these have been rescues of some handful or few dozen "boat people" at a time. In early May, prior to the President's announcement, occurred the rescue of the largest number of refugees by a single U.S. Navy vessel, when the USS *Robert E. Peary* (FF-1073) plucked approximately 440 refugees from almost certain death some 80 miles off the Malaysian coast.

On 5 May 1979, LTJG William Bevil, the officer of the deck, spotted a 55-foot fishing boat, carpeted from bow to stern with people. A man was signaling the international distress sign by semaphore. The *Peary*'s CO, CDR Bill Mathis, directed Bevil to heave to near the boat and sent the motor whaleboat out to investi-

Dr. Herdener is presently stationed at NRMC Pearl Harbor, Hi.

gate, commanded by the XO, LCDR Larry Eggleston, who had Vietnam war experience. As squadron medical officer, I went along to evaluate and offer any medical assistance possible. Once alongside, it became obvious that no significant contribution could be made from the whaleboat. The refugees were literally jammed in every available space. Most showed signs of exposure and dehydration. After a brief interview through a few English-speaking Vietnamese, it was discovered that they were out of food and water and their engine was disabled. They were towed alongside and *Peary*'s engineers went to work assessing their engine trouble while the Mess Management Specialists began cooking lunch for 450 extra guests. Over 250 gallons of fresh water and 300 lbs of food were initially given for resumption of their journey. Since they had embarked from Vietnam five days earlier the refugees had allegedly been boarded repeatedly by coastal pirates who stole their food, water, jewelry, gold, and navigational aids. During the long wait while the *Peary*'s engineers evaluated and worked on the engine, the sweltering sun began to take its toll despite *Peary*'s maneuvering to keep the boat in the shade. I made repeated visits to the boat to evaluate individuals who had had syncopal episodes from the heat. In the crowded conditions, the best that could be done was to ascertain whether the patient was stable and render whatever first aid possible. At that time we were under strict instructions to render all aid and assistance feasible but not embark anyone unless it was a life or death situation. These "house" calls continued well into the night as the drama of what to do with the boat people continued.



LT Herdener with newborn. Patches are to protect the infant's eyes from the incubator's ultraviolet lights.

Feelings ran high and mixed. Many "Nam" veterans among the officers and crew had an initial suspicious attitude, but after observing the miserable condition of the refugees hour after hour alongside, it eventually became apparent that what needed to be done was to take them aboard. After 17 hours of dedication, the engineers declared the dilapidated, old engine irreparable. This was forwarded to Commander, 7th Fleet. Then began another wait to hear approval for what we felt to be the obvious next step. Spontaneously, the crew began to prepare for our guests. Shower and toilet facilities were set up on the fantail. An awning was set up on the flight deck to house the refugees. The corpsmen, HM1 Jim Curry and HM3 Cliff Chanco, created a makeshift hospital in the helo hanger bringing up anticipated supplies from sick bay and blanketing off a "cot" area for a ward.

Finally in the early hours of 6 May, CDR William Mathis, skipper of the *Peary*, received authorization from RADM Sinclair, Commander TF75, to take whatever steps necessary to insure the safety of the refugees. Mathis decided that since it was dark and the people were already bedded down for the night it would be safer to board them at first light—a few hours away. The balance of the night was uneventful save for several house calls.

At dawn the refugees were embarked by families. It went surprisingly smoothly. All clothing and personal effects were examined on the quarterdeck and weapons and medicinals confiscated. A medical triage area was set up on the quarterdeck and through an English-speaking interpreter, HM3 Chanco and I evaluated those with specific complaints. Those requiring further immediate care were sent to the helo hangar hospital where HM1 Curry either admitted or treated the patient. The rest were given blankets and directed to the helo deck to bed down and rest.

About eight were hospitalized that day, mainly for exhaustion and dehydration. Four required IV supplementation for hypovolemia. Once the patients could

tolerate oral fluids or food they were discharged to the care of family. Thus by nightfall, after 12 hours rest, two meals, and water, the *Robert E. Peary* "hospital" quickly emptied out.

Two women were in their ninth month of pregnancy. One was due at any time. She eventually delivered on board the USS *Tarawa* (LHA-1). Only four patients required further care: A 24-year-old Vietnamese girl with dysentery and intractable vomiting, a man with psychosis who kept hallucinating and required sedation, and a newborn and his mother. The girl required continual vigorous volume replacement for her dysentery and hypotension but gradually improved by the time of her transfer four days later. The psychotic patient improved by the following day and was discharged to his family.

The baby had been born on the refugee boat at sea two days before they were encountered. Although vigorous and feeding well, it had a low grade temperature and jaundice of the new born. Without being able to ascertain the baby's bilirubin, I decided to treat him empirically by putting him under ultraviolet light in a small cardboard box we had designed into an incubator. The box was heated with a 25 watt bulb and the temperature controlled with vents. Thus was established the *Robert E. Peary*'s Neonatal Intensive Care Unit. The baby continued to do well and had gained six ounces by the time he left the *Peary*. The baby's mother had reported a difficult delivery on the boat and didn't feel as though her placenta had completely passed. She also had a low grade temperature and a mildly tender uterus. I decided to do a pelvic to ascertain whether she was developing endometritis. I thanked God for my Ob-Gyn internship background and only wished I had the stirrups which the XO had jokingly promised me for sick bay. Her exam was unimpressive for endometritis and I decided to withhold antibiotics. Within the next two days her fever subsided and she improved on *Peary* food and water. The mother was right, however. She continued to bleed and eventually required a D&C for retained products of conception.

Surprisingly, the incredible soon became work-a-day. The following day, 7 May, we set up an outpatient clinic and began treating a variety of problems typical of any mixed population: otitis, upper respiratory infections, gastroenteritis, heat rash, various abrasions, and minor burns. We logged over 90 outpatient visits over the next three days the refugees were aboard.

The most challenging problem turned out to be dealing with children's fevers. The Vietnamese didn't understand the notion of repeating medications on a prescribed basis so we had to repeatedly treat the small children. Only adult five grain aspirin was available which had to be cut up in approximate doses for the children. Between this and sponge baths we were able to keep the fevers under control. We lacked any antibiotic suspensions for children. Luckily only one otitis media was uncovered in a child old enough to take antibiotics by capsule.

A continual problem was heat rash. A plea to the crew and ship's store turned up ample talc which was administered in plastic pill containers with holes punched in the top. Gradually, the covered living area, availability of water for bathing, and the talc resulted in a clearing of the heat rash problem only to reveal a youngster who actually had had the measles all along.

One of the most refreshing aspects of the refugee experience was the positive response of the *Peary* crew. In the hours awaiting permission to embark the refugees, the medical department was inundated with offers to help with setting up the examination and "hospital" areas. When the refugees were aboard, the corpsmen and I had to spend much of our time attending the hospitalized patients. We had numerous HM "strikers" who were invaluable in keeping the outpatient clinic running smoothly. Under supervision, they took brief histories and vital signs, cleansed and dressed wounds, and sponged bathed the febrile children. Universally, they enjoyed their experience and I would not be surprised to see a few of them truly striking for hospital corpsman soon.

HM1 Curry and HM3 Chanco, through their constant vigilance and dedication to the service of the refugees, again demonstrated why Navy corpsmen are heralded worldwide for their excellence in medical care.

Even upon arrival in Thailand, the fate of our guests was uncertain. We were greeted by the international press and U.S. Embassy officials and were informed that, afterward, the refugees would be guaranteed resettlement in the United States if they desired.

The *Peary* had lost three days in her schedule and she was due within the week in Subic Bay, P.I. for a needed upkeep period prior to her return to Pearl Harbor. It was determined therefore to transfer the refugees to the USS *Tarawa* (LHA-1) for further medical treatment and U.S. Embassy processing prior to their debarkation in Thailand.

The crew again was filled with mixed emotions of relief and sadness as they gazed down on their refugees —this time comfortably filling two of *Tarawa*'s mike boats for transfer. There was relief that a 96-hour ordeal was over and sadness that an incredible personal experience of generous humanitarian good will was ending. The "Refugee Encounter Ex 79," as we dubbed it, will long be remembered in sea stories and pictures within *Peary*'s hull.

An Interview With Astronaut Joe Kerwin

Last month, U.S. NAVY MEDICINE ran part I of a recent interview with NASA Astronaut Joseph P. Kerwin, MC, USN. Dr. Kerwin described events leading to the dramatic rescue of the stricken Skylab space station and discussed some of the medical aspects of space flight.

What is the relationship between weightlessness and the loss of body calcium?

The bones do, in fact, begin to go negative in calcium balance after a week or two of weightlessness. The body loses a small fraction—a few hundred milligrams a day of calcium. The crew on the three-month mission had an average loss of about six percent of their total body calcium. It's a straight line function. We don't see any tendency for that to level out but I think that is because we haven't flown long enough yet. The turnover of calcium from the bone pool to the body pool is a very slow thing. I suspect that when we've flown six months, we'll see people stabilize at 10 or 15 percent less body calcium.

The Soviets, then, haven't given us any calcium data from their long duration flights?

No. We'll get that information in dribs and drabs over a period of three, four, or five years—when they figure we're about to find out ourselves. In the meantime, we get generalities from them. The two communities do talk to each other but we never get as much detail as we'd like to.

Calcium balance is touted by some people as a potentially serious problem for Mars missions and truly long duration flights of a year or more.

My personal guess is that it's not going to be a problem. It too will find an equilibrium. But we will have to fly for a year before we know that.

Once you return to earth, is there a problem in replacing calcium loss?

Let me make one overall statement about the way we've conducted medical research up till now. We have not attempted significant countermeasures to things like calcium loss because we wanted to find out what the natural body does in adapting to weightlessness. The only compromise we made was in the field of exercise. Muscles you don't use atrophy rather rapidly. I'm talking about the leg muscles and the back muscles—the big, weight-bearing, gravity-fighting muscles of the body. Our 28-day crew exercised daily on a bicycle, strapped to the pedals so we wouldn't float away. But we didn't exercise hard—15 or 20 minutes a day. We found that we could ride the bike but that was about all we could do. We'd lost walking, climbing, running muscles. Our calves and thighs were very much smaller in circumference, from four to five centimeters. We were pretty weak and unsteady when we got back for a few days. At that point, we decided to increase the dietary allowance of the crew in flight because we'd been on a constant calory diet for purposes of our intake and output study. We had been kept to this rather low-calory diet. After the first flight, we decided to give the crews more to eat and make them exercise harder to keep those muscles in shape. We devised other means of exercising besides the bicycle which stressed the right muscles in the right way.

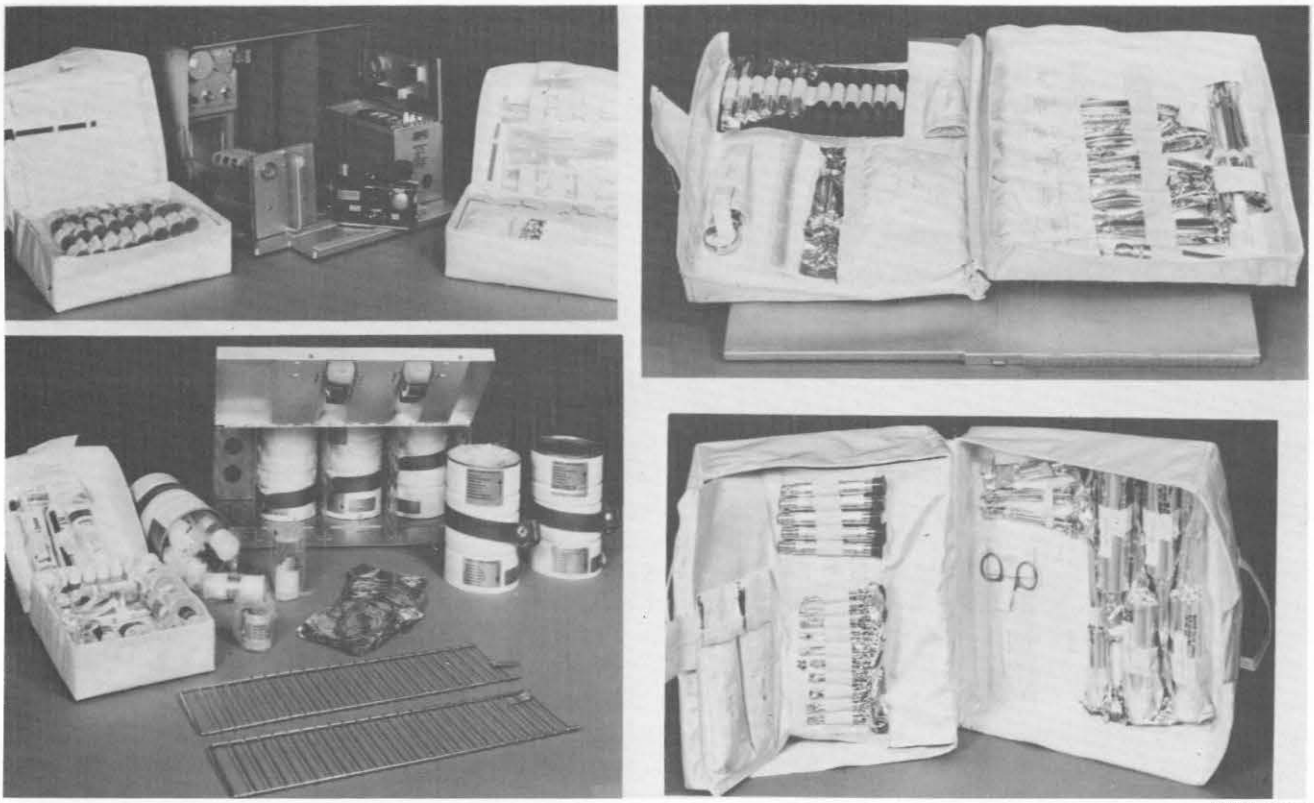
The third crew, which stayed up three times as long as we did, had less weight loss and more muscle strength than the first 28-day crew. Exercise worked.

How did the regimen change?

They used the bicycle twice as much as we did. But they also added two things. One was an "Exergym," one of those small, personal exercise devices that consists of a cylinder and some ropes and hooks. You essentially pull and push against resistance—isotonic exercises. We bought a couple of those and shipped them up with the second crew. They used them but they didn't help enough. So one of the our resident geniuses invented a poor man's treadmill. What you really need, he thought, was the weightless equivalent of jogging. You need to get compression forces on the long bones and exercise the extensor muscles of the legs in a way that a bicycle doesn't. He built a strip of slippery Teflon about three by two feet. The men would remove their shoes and use the device with just their socks on. It had bungies and a waist belt. They put on the waist belt, fastened the spring bungies to holes in the floor, which compressed their feet down against the Teflon with about 150 pounds of force. They would lean at a 30 degree angle, grab a handle so they would't fall down, and then jog. Their feet would slip over the Teflon. It was similar to running on a treadmill. They did that virtually on a daily basis for 10 to 15 minutes in addition to the bicycle and the isotonics and they came back stronger in some extremities than before they were launched.

Exercise is definitely the answer to muscle atrophy, but as to what's

Skylab Medical Supplies



NASA photo

Top Left—Laboratory Equipment
Bottom Left—Medications Module
Top Right—Dental Kit
Bottom Right—Therapeutic Kit

a good countermeasure to calcium deficiency, we don't know yet because we haven't tried. We could alter the amount of calcium in the diet, or alter the calcium to phosphorous ratio. You could add vitamin D, use parathyroid hormones gingerly—we're a little cautious about fooling around with hormone balance—but there are things that can be used as countermeasures as the flights get longer.

The last resort would be artificial gravity. We could build the long duration spacecraft like a dumbbell with the living quarters at both ends and the skinny corrider in between. We could then twirl it like a baton and create centrifugal force or artificial gravity in the living quarters. We don't really want to do it because it's a complex system to engineer and really, why bother? Weightlessness is one of the priceless commodities for experiments and you hate to ruin it by rotating the whole spacecraft. You have certain disadvantages. You can't pour milk from a bottle into a glass and drink it; you have to squeeze it from a bag. But this is a minor thing. You can learn to housekeep at zero G with a few days or a week's experience. Then it's so much fun to float around like Peter Pan in space. And it's very convenient. If this room were at zero G, we could put two more people in it because we could put a desk up there and a desk up there on the ceiling and use the volume. That's the way we designed Skylab. We had work stations all over the place. You'd be working here and your buddy, who was upside down, would be working up there.

What were the Series 70 experiments?

This included the intake and output study—the calcium, nitrogen, electrolyte, and caloric balance. We measured everything that went in and came out. The losses of electrolytes are not disturbing and are simply proportional to weight loss. There are still some unexplained hormonal changes that indicate kidney function is in some way altered. We don't know whether it's a altered because of pressure relationships in the arterial and venous blood or for some other reason. We don't know if there is such a thing as "stress" that is in fact releasing adrenal hormones

which cause aldosterone, renin, and all those things to change. Again, I'm not concerned because there were no clinical effects.

We had several cardiovascular experiments. One used lower body negative pressure. This was a simple way of simulating gravity as far as the heart and blood vessels are concerned. You take a garbage can with a hole at the top, slide into it feet first until you're in it up to the waist. You then wrap a rubber seal around your waist and attach a vacuum line to the garbage can and remove the air. The negative pressure on the lower half of the body pulls and pools blood in the body's lower half as it does when you're standing upright in normal gravity. The heart now has less blood to work with so it must work harder. What you are simulating is the physiologic state of the individual after reentry. By varying the amount of negative pressure by the amount of air you pump out of the garbage can, you can simulate the effect of gravity. You measure the amount of pooling you get by very accurately measuring the increase in the circumference of the legs and then you look at the physiological response. How high does the heart rate go, what happens to blood pressure, does anybody pass out? That test was one way of simulating the readaptability to gravity. The first few tests concerned us because we were getting a much more dramatic response than we got on the ground. The effect of losing the blood was very obvious. But we found out from this test that this doesn't change over a period of time. As I say, that's a quick adapting mechanism. You lose so much and you don't lose any more. That gave us confidence that on long missions we would be able to bring the crew back without any problem.

We also did metabolic rate testing on the bicycle. We measured not only heart rate and blood pressure but also oxygen consumption and carbon dioxide production.

We also discovered that one's ability to exercise was unimpaired as long as you didn't allow the muscles to atrophy. This gives us confidence that crews can do heavy work at zero G. They can go EVA and construct space platforms or solar-powered stations etc. Just keep them working, give them enough to eat, and they will be fine.

These were relatively crude experiments and the changes, I think, were profound considering the short period we were up there and the maturity of the organisms. I think the next step is to begin to look at the details in animals. Take mammals—mice, rats, guinea pigs, animals with short reproductive spans—and observe whole generations born, raised, reproducing, and dying in weightlessness. I think we'll see changes in mammalian physiology that will make our eyes pop. I think we'll learn a lot about how embryonic maturation is affected by gravity. The bones may never calcify at all. The shapes, the muscle patterns, the nervous system responses, the balance mechanisms, and muscular reflexes may be totally different. We may, of course, be raising animals that are incapable of living in normal gravity. I'm not sure we'd ever want to do that with humans. But as a fundamental experiment in how living matter operates, there are a lot of opportunities. This, no doubt, is one of the directions we will be going in the next 10 or 15 years. Besides that, we will be preparing to do bigger and better things in space with humans such as construction of space stations and eventually interplanetary travel. All this implies that clinical medicine in weightlessness will have to be developed. We will have to learn to build dispensaries and hospitals, how to operate them in a weightless environment. But this may be primarily an engineering problem.

Speaking of the clinical aspects of space flight, what did you run into during your Skylab mission?

We were very fortunate. We had very few injuries and illnesses. It's a very healthy environment. I was prepared to totally manage minor injuries and illnesses and stabilize major problems. I had intravenous fluids, drugs, a minor surgery kit for suturing, hemostasis, and I had a fundamental lab capability. I could even do cardiopulmonary resuscitation if it were necessary. That part of the kit was never used. We had a few headaches, one case of fluid in the middle ear due to pressure change, a foreign body in the eye, and a dislocated finger which popped itself right back in, and that was it.

You were looking at the effects of orbital frequency on sleep patterns. Was this an experiment?

No it wasn't. We had so many variables already that we didn't want to vary the sleep-wake cycle of the crew additionally and throw all our other hormone measurements off. So we decided that we would get up at 6:00 in the morning Houston time and go to bed at 10:00 at night Houston time regardless of whether it was light or dark outside. We ignored the 90-minute day-night cycle that you get in a low earth orbit. We essentially stayed on a 24-hour Houston work-rest cycle and eliminated that as a variable.

How did you find sleeping in space? Could you get along with less sleep?

The average duration of sleep is about a half hour less than on the ground. Subjectively, I would say that sleep is lighter and that you are

more easily wakened and disturbed. The electroencephalogram showed that our percentages of time spent in the various stages of sleep including deep sleep was about the same. The pattern varied somewhat, but on average it was about the same as it was on the ground. I think the reason we woke up more often was just the strangeness of the environment and the fact that any little noise is a different noise and tends to wake you up.

On your Skylab mission, did low humidity lead to any dermatological problems?

Yes. We had a very dry spacecraft. It was, of course, much warmer than it was designed to be. The air circulation went from a fan through the cabin where it picked up moisture from perspiration and carbon dioxide, then passed through a cooling system which condensed out that moisture. So the air was constantly being dried as it passed through the environmental control system. We had a very clean spacecraft with no bacterial or mold growth anywhere. As for personal bacterial growth or dermatological problems, we did have a few cases of dry skin and flaking. Some crewmembers developed a few boils, but nothing serious enough to require treatment. And that was it.

We did bacterialogical studies pre-flight, inflight, and post-flight. We took swab samples from the throat, various points on the skin, etc. and characterized the bacterial flora of each individual. How many species did he carry up with him, how many did he carry back? We found what had been predicted that some of the species that we had on launch weren't there after reentry. Presumably, these species are not hardy enough to remain in being on or in the body without being refreshed from the ambient air or soil etc. There were fewer bacterial species but certain species overgrew. Staph was the number one example. We also noticed that bacteria found pre-flight on one individual might be found post-flight on all three. In the very long run this could spell trouble. You might find bacteria that were essential parts of your flora—certainly intestinal bacteria—which are required, might die out and the individual might run into a dysentery problem. We might also find that in the absence of normal species on the skin and the throat that abnormal species like staph might overgrow and begin to cause clinically significant problems on very long duration flights. It's been suggested that on such flights you would carry along a supply of bacteria and that every now and then you would pop a capsule con-

NASA photo

Lying in the lower body pressure device, Dr. Kerwin is helped with the blood pressure cuff by Astronaut Paul Weitz. The purpose of this experiment was to provide information concerning the time course cardiovascular adaptation during flight, to provide in-flight data for predicting the degree of orthostatic intolerance, and impairment of physical capacity to be expected upon return to Earth environment. Data collected included blood pressure, heart rate, body temperature, vectorcardiogram, leg volume changes, and body weight.

taining lactobacillus or smear the skin with something containing normal soil type aerobes that are part of your normal floral population.

You mentioned earlier that radiation had begun to fog your film after several weeks. How did radiation, in general, affect the crew?

Radiation didn't affect the crew at all. The largest radiation dose which the third crew sustained was between two and three rems, and considering that that's the dose you get from a series of GI x-rays, it's not a great deal. The film is more sensitive in that respect than human beings are. Some of our high speed films began to get a little background fog.

Even through the lead shielding of the film vault?

Yes. Our rule was that even the cameras we used for out the window or interior pictures had to go back in the film vault every night to protect the film. But there were no human effects. On long duration missions cumulative radiation might become a problem and in particular on missions to the Moon we had a problem with acute high doses of radiation due to solar flares. In low earth orbit you are protected by the Earth's magnetic field. The high energy particles are mostly diverted into the Van Allen belts. When you are outside the magnetic field of the Earth, such as the surface of the Moon, you are subject to 100, 150, or 200 rems of radiation within several hours, especially if a really massive solar flare spits a lot of particles toward the Earth. In the Apollo days we had quite a worldwide network of astronomers who were looking at the Sun and looking for changes and trying to give us several hours lead time on the major flares so we could hustle the crew off the Moon's surface and back into the command module which was heavily shielded in time. It was a risk to go to the Moon. In fact, we never had a big flare during a lunar mission.

NASA photo

Dr. Kerwin strapped into his sleep restraint in the Skylab crew quarters. He wears a special cap containing biomedical instrumentation for the sleep monitoring experiment designed to evaluate quantity and quality of sleep.

Are you subject to great risk just passing through the Van Allen belts?

Yes, but you go through them so fast and you're inside a spacecraft so that the dose rates are but a fraction of a rem.

One type of mission we are thinking about flying is a geosynchronous mission. You would need to service those spacecraft or build solar power stations to convert sunlight into electrical power and beam it down to earth. This, by the way, is a project we're very excited about. The logical place to have spacecraft like that is in geosynchronous orbit because you will have one ground receiving station and you'll want the satellite to be overhead. This means a lot of manned work in construction, maintenance, refurbishment, and repair in geosynchronous orbit. Unfortunately, this type of orbit happens to be right in the middle of the outer Van Allen belt. It's a high radiation environment, but it is low energy radiation, electrons that are low velocity and not very penetrating. It doesn't take much shielding in the spacecraft to keep the crew safe. Even using the thin-walled Skylab, you would have a safe, 90-day stay time in synchronous orbit before you reached your dose limit and had to return to Earth. But if you go EVA in a spacesuit, you could reach the limit in as little as 12 hours. This tells us we can't do EVA in synchronous orbit the way we've been doing it in the past. We will probably have to design a little scooter with remote manipulator arms but which itself would shield the crew and allow the astronauts to do their work remotely. The only other option would be to build a shielded suit and I'm not sure this could be done while preserving the requisite mobility.

—(In next month's concluding segment, Dr. Kerwin talks about the Space Shuttle and the future of space travel.)

Navy Readies Youth for Competition

LTJG Daniel A. Wilbur, MSC, USNR

In addition to the provision of medical care, the Navy Medical Department is often called upon to use its expertise in other areas. One such area is the qualifying of dependent youths for strenuous activities during the hot summer months. In June of last year, NRMC Camp Lejeune, N.C., was asked to assist in determining those dependent youths who were physically qualified to participate in competitive athletics. The NRMC, having responded to similar requests in the past, readily indicated a willingness to participate.

Conditions were such at the time that it would not have been surprising to see such a complicated undertaking fail. The summer shortage of hospital personnel had already begun to plague the facility. If assistance could be provided, it became clear that it would have to be on a strictly volunteer basis due to the heavy workload during regular duty hours.

Coordination was turned over to the Outpatient Administrative Officer and the Outpatient Department Nursing Coordinator. With no knowledge of the expected results, they placed an initial call for volunteers in the NRMC's "Plan of the Day."

The response was surprising. Even those personnel without children of their own seemed more than willing to help.

The physical exams were conducted on two consecutive Saturday mornings, allowing one day each for girls and boys. The high school's administrative offices became examining spaces and personnel became "screeners," "physical examiners," or simply maintained patient flow. As it turned out, everyone, regardless of their assignment, had a great deal of work to do.

The athletic program at Lejeune High School had a significantly large participation and, consequently, the number of students needing physical exams was great. Therefore, the coordinators decided to structure patient flow to allow a large number of patients to be seen within a reasonable time (Table 1). After logging the student in, the initial screening data were taken and the student moved on to a physician's assistant (PA), or a

LTJG Wilbur is Chief of Outpatient Administrative Services, NRMC Camp Lejeune.

TABLE 1. Patient-Flow Diagram

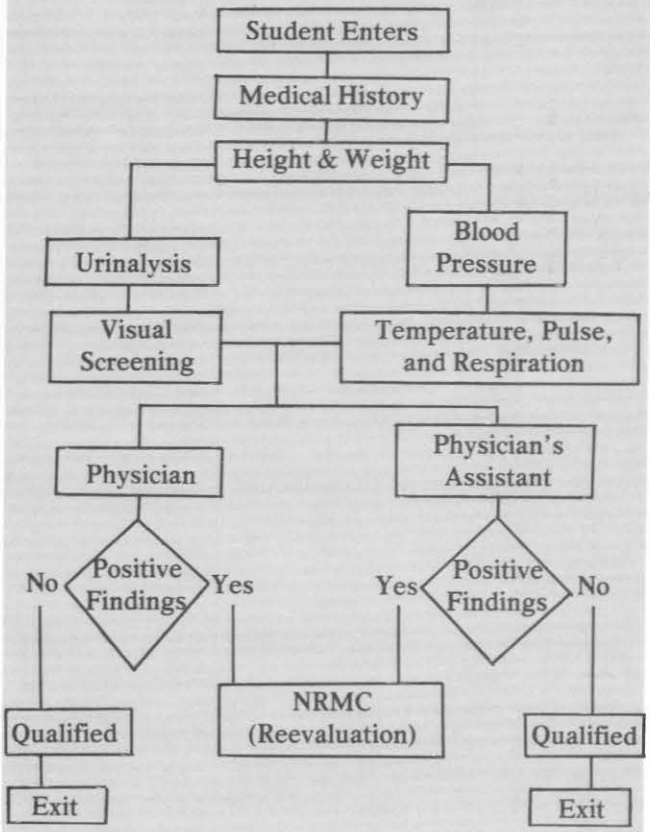


TABLE 2. Statistics

	Number Seen	NRMC Referrals
Male Students	92	4
Female Students	73	31
Total Students	165	35

TABLE 3. NRMC Referrals

	Glucosuria	Proteinuria	Hypertension	Heart Murmur
Male Referrals	0	2	1	1
Female Referrals	0	31	0	0

TABLE 4. Disqualifying Statistics

	Proteinuria	Glucosuria	Failure to Make Followup Appt. at NRMC	Hyper-tension
Males	0	0	0	1
Females	0	0	6	0

physician for the completion of the physical examination.

Those who coordinated the activity were interested in the number of students examined and the number of positive findings, if any, detected (Table 2). It is interesting to note that 43 percent of the females examined were referred as opposed to 4.3 percent of the males. The coordinators decided to look further into this obviously large disparity between the male and female athletic populations. Based on the lab data, students with the presence of glucose (Glucosuria) or protein (Proteinuria) in the urine were referred to the NRMC. Clinical criteria were also looked upon as potentially disqualifying factors, but Table 3 indicates that the majority of NRMC referrals were made on the basis of Proteinuria.

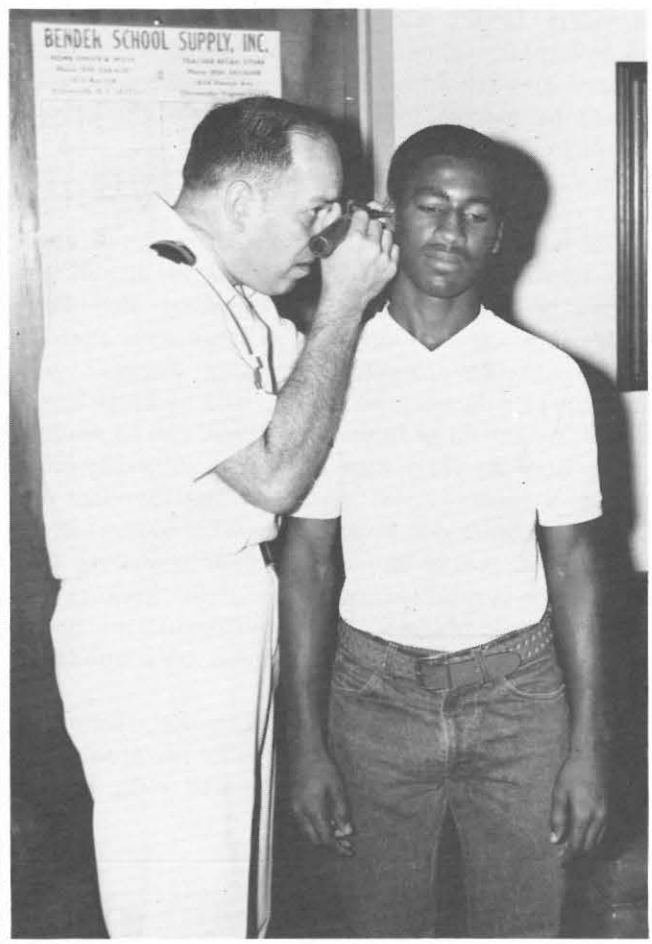
It can be seen from Table 4 that out of 35 students referred, only one was disqualified on the basis of physical criteria. A total of six students were disqualified due to their failure to make the necessary followup appointments. Since no disqualifications were made on the basis of Proteinuria, it was concluded that the urinalysis test itself was ineffective in pointing out the problem population. There were several possible confounding factors such as protein spillage secondary to pre-examination physical activity, contaminated specimens, or simply the general lack of controlled conditions.

The overall efficiency of this volunteer undertaking is indicated in the calculated efficiency per student for the total time period as being 2.18 minutes per physical exam (Table 5).

The 1979 Lejeune High School physical examination clinic was a representative example of cooperation between NRMC Camp Lejeune and the dependent schools in preparing youth for athletic competition. The constant goal of the Navy is the maintenance of high quality standards in the delivery of health care to the Navy-Marine Corps family. The physical examination clinic was clearly an example of an individual commanding officer and his command contributing to the attainment of this goal.

TABLE 5

Total Time for Both Days	6 hrs.
Total Number of Physicals Done	165
Total Time Per Physical	2.18 min.
Total Number of NRMC Volunteers	28



Commanding Officer CAPT James L. Hughes, MC, USN, examines a student.

Development of an Outpatient Medical Treatment Reporting System for Shipboard Use

Lawrence A. Hermansen
Allan P. Jones, Ph.D.
LT Mark C. Butler, MSC, USNR

An earlier report from the Naval Health Research Center(*1*) noted the need for an updated shipboard medical reporting system to meet the increasing demand for accurate medical treatment information. Ideally, this system should be as responsive to the needs of medical administrators and policy-makers for long-term, broad-scope information as it is to the needs of health care providers, facility managers, and medical researchers for information about short-term morbidity trends or focused problem areas. Further, the reporting system should be precise, flexible, and, above all, easy to administer or use.

No existing medical reporting system meets all of these requirements. Present patient care logs or individual health records contain sufficient detail about each treatment episode to reconstruct the health care history of an individual. Unfortunately, this detail makes such a system unwieldy for large-scale analyses or broad-scope planning purposes because vast amounts of data must be summarized by hand before trends are known or future projections can be made.

The need for Navy-wide outpatient morbidity information is currently met by the Medical Services and Outpatient Morbidity Report (NAVMED 6300/1) which provides an overall summary for administrative purposes. This system is restricted in ability because it is not possible to pinpoint short-term fluctuations, and it cannot be used to identify particular occupational or demographic groups at high risk.

The need for many types of morbidity information seems to provide ample justification for the presence of multiple reporting formats, each tailored to the users of a particular kind of information. Ultimately, however, each system depends on the same basic unit of observation, that is, a record of hands-on treatment provided at each patient visit. Thus, care must be taken that implementation of new systems does not result in unnecessary clerical demands on the ship's Medical Department Representatives (MDRs) at the cost of direct patient care. The desire to reduce the recordkeeping load on shipboard medical department personnel and, at the same time, provide an illness reporting system responsive to the wide variety of existing demands for accurate medical treatment information led to the development of the system described below.

A provisional reporting system that appears to meet these diverse demands has been in use on four amphibious assault ships for several months. This system is being used in lieu of other on-board illness reporting procedures for the current overseas deployment period. A single reporting form provides the information necessary for the individual treatment report, the MDR sick call log, and the monthly outpatient morbidity report (NAVMED 6300/1). The only additional reporting demands are those required in case of accidents or by agencies other than the Bureau of Medicine and Surgery.

The Medical Treatment Report

The heart of the system is the Medical Treatment Report, an optically scannable summary of the treatment provided at each visit to the ship's dispensary. This form (see Figure 1) summarizes the reason(s) (diagnosis) for each visit, the treatment(s) provided, and the final disposition for each patient seen by the corpsman or doctor on board. The form also provides data regarding the individual's occupation, paygrade, and workgroup (division).

A separate form is completed for each visit. The original copy is forwarded to a central location for tabu-

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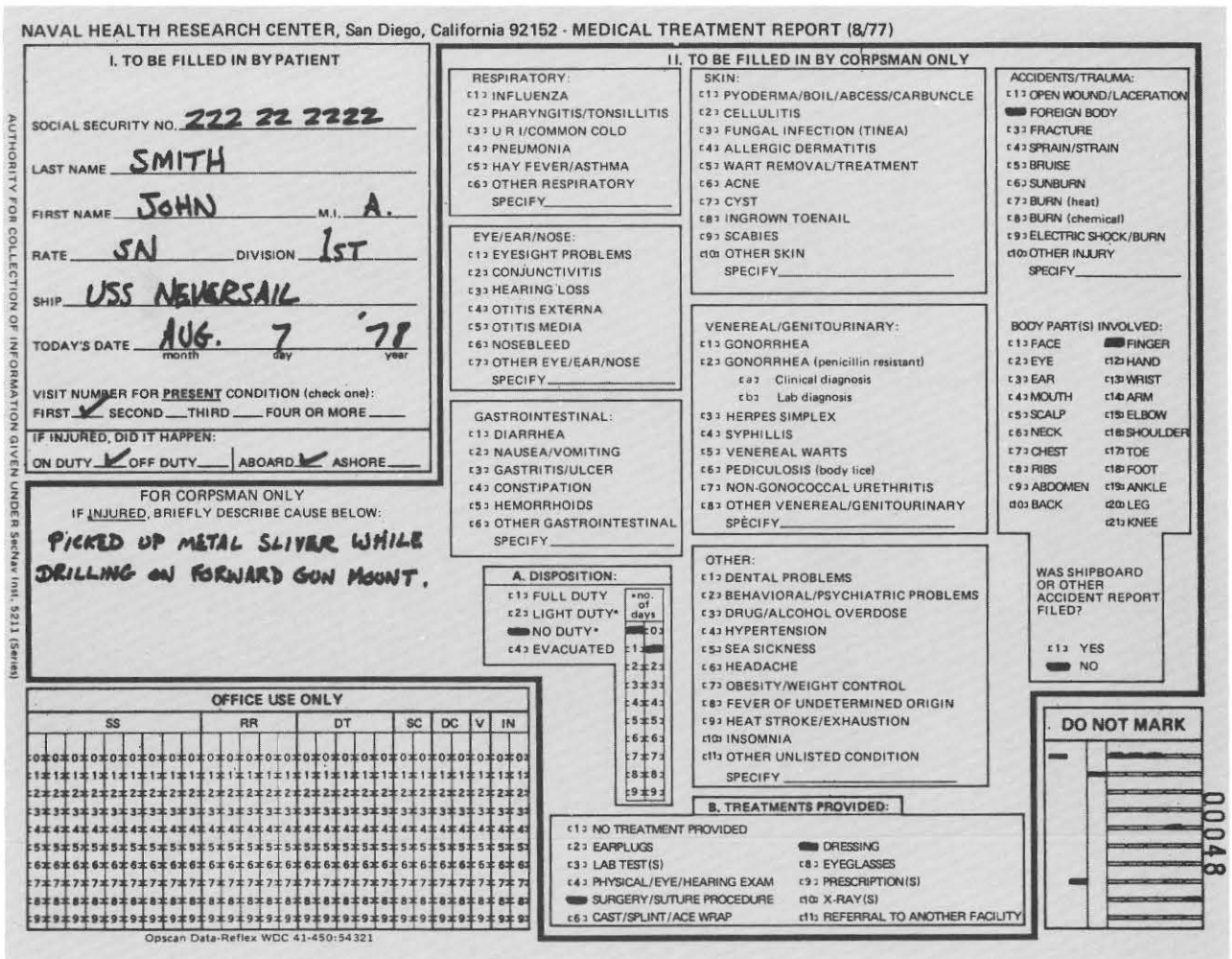
lation. The second or carbon copy is retained in the ship's medical files. Those few steps, and a quick review to insure the completeness and accuracy of the information, fulfill the reporting demands for the individual corpsman.

Because the form is designed for machine optical scanning, the completed information is readily available for tabulation into any summary format desired. Focused summaries may be returned to the ships to assist the MDR in reviewing morbidity rates and anticipating future health care needs. Similarly, the long-term information needs of the policy planner are as easily met. Thus, the need for a variety of reporting formats appears to be met by a single system that places minimal demands on the shipboard health care providers.

How well does it work? With any new system, there is justifiable concern as to whether the promises of the design can be attained in an actual application. Thus, it appears useful to review the steps taken to implement this system, to describe reporting procedures from the time an individual appears at the door for treatment until the final summary report is filed, and to present examples of summary reports readily obtained from this system.

Implementation

In the early pilot stages, the steps required to implement the system were straightforward and simple. Upon authorization by the necessary commands, a short briefing was held with each ship's senior officers and medical department heads to explain the purpose of the proposed Medical Treatment Reporting System and its demands on the ship's company. Other than completion of the Medical Treatment Report (MTR), such demands were minimal. The ship's personnel office was requested to provide an up-to-date roster that indicated each crew member's division assignment and


NAVAL HEALTH RESEARCH CENTER, San Diego, California 92152 · MEDICAL TREATMENT REPORT (8/77)

I. TO BE FILLED IN BY PATIENT

SOCIAL SECURITY NO. 222 22 2222
LAST NAME SMITH
FIRST NAME JOHN M.I. A.
RATE SN DIVISION 1ST
SHIP USS NEVERSAIL
TODAY'S DATE AUG. (month) 7 (day) '78 (year)
VISIT NUMBER FOR PRESENT CONDITION (check one): FIRST ✓ SECOND ___ THIRD ___ FOUR OR MORE ___
IF INJURED, DID IT HAPPEN: ON DUTY ✓ OFF DUTY ___ | ABOARD ✓ ASHORE ___

FOR CORPSMAN ONLY
IF INJURED, BRIEFLY DESCRIBE CAUSE BELOW:
PICKED UP METAL SLIVER WHILE DRILLING ON FORWARD GUN MOUNT.

II. TO BE FILLED IN BY CORPSMAN ONLY

RESPIRATORY: [1] INFLUENZA [2] PHARYNGITIS/TONSILLITIS [3] U R I/COMMON COLD [4] PNEUMONIA [5] HAY FEVER/ASTHMA [6] OTHER RESPIRATORY SPECIFY

EYE/EAR/NOSE: [1] EYESIGHT PROBLEMS [2] CONJUNCTIVITIS [3] HEARING LOSS [4] OTITIS EXTERNA [5] OTITIS MEDIA [6] NOSEBLEED [7] OTHER EYE/EAR/NOSE SPECIFY

GASTROINTESTINAL: [1] DIARRHEA [2] NAUSEA/VOMITING [3] GASTRITIS/ULCER [4] CONSTIPATION [5] HEMORRHOIDS [6] OTHER GASTROINTESTINAL SPECIFY

SKIN: [1] PYODERMA/BOIL/ABCESS/CARBUNCLE [2] CELLULITIS [3] FUNGAL INFECTION (TINEA) [4] ALLERGIC DERMATITIS [5] WART REMOVAL/TREATMENT [6] ACNE [7] CYST [8] INGROWN TOENAIL [9] SCABIES [10] OTHER SKIN SPECIFY

VENEREAL/GENITOURINARY: [1] GONORRHEA [2] GONORRHEA (penicillin resistant) [a] Clinical diagnosis [b] Lab diagnosis [3] HERPES SIMPLEX [4] SYPHILLIS [5] VENEREAL WARTS [6] PEDICULOSIS (body lice) [7] NON-GONOCOCCAL URETHRITIS [8] OTHER VENEREAL/GENITOURINARY SPECIFY

OTHER: [1] DENTAL PROBLEMS [2] BEHAVIORAL/PSYCHIATRIC PROBLEMS [3] DRUG/ALCOHOL OVERDOSE [4] HYPERTENSION [5] SEA SICKNESS [6] HEADACHE [7] OBESITY/WEIGHT CONTROL [8] FEVER OF UNDETERMINED ORIGIN [9] HEAT STROKE/EXHAUSTION [10] INSOMNIA [11] OTHER UNLISTED CONDITION SPECIFY

ACCIDENTS/TRAUMA: [1] OPEN WOUND/LACERATION ■ FOREIGN BODY [3] FRACTURE [4] SPRAIN/STRAIN [5] BRUISE [6] SUNBURN [7] BURN (heat) [8] BURN (chemical) [9] ELECTRIC SHOCK/BURN [10] OTHER INJURY SPECIFY

BODY PART(S) INVOLVED: [1] FACE [2] EYE [3] EAR [4] MOUTH [5] SCALP [6] NECK [7] CHEST [8] RIBS [9] ABDOMEN [10] BACK ■ FINGER [12] HAND [13] WRIST [14] ARM [15] ELBOW [16] SHOULDER [17] TOE [18] FOOT [19] ANKLE [20] LEG [21] KNEE

WAS SHIPBOARD OR OTHER ACCIDENT REPORT FILED? [1] YES ■ NO

A. DISPOSITION: [1] FULL DUTY [2] LIGHT DUTY* ■ NO DUTY* [4] EVACUATED (*no. of days)

B. TREATMENTS PROVIDED: [1] NO TREATMENT PROVIDED [2] EARPLUGS [3] LAB TEST(S) [4] PHYSICAL/EYE/HEARING EXAM ■ SURGERY/SUTURE PROCEDURE [6] CAST/SPLINT/ACE WRAP ■ DRESSING [8] EYEGLASSES [9] PRESCRIPTION(S) [10] X-RAY(S) [11] REFERRAL TO ANOTHER FACILITY

OFFICE USE ONLY
SS | RR | DT | SC | DC | V | IN

DO NOT MARK

00048

AUTHORITY FOR COLLECTION OF INFORMATION GIVEN UNDER SecNav Inst. 5211 (Series)

Opscan Data-Reflex WDC 41-450:54321

FIGURE 1

MEDICAL SERVICES AND OUTPATIENT MORBIDITY REPORT — **REPORT SYMBOL MED 6300-1**

NAVMED 6300/1 (6-71) S/N 0105-213-0100

NAME, ADDRESS, ZIP CODE OF FACILITY	FACILITY AND LOCATION CODE	REPORT PERIOD
USS XXXXXX FPO San Francisco 96601	0F0F0F0F0F0F9L0L	7Y8Y1M0M

SECTION I – GENERAL WORKLOAD

LINE NO.		ACTIVE DUTY – U.S. UNIFORMED SERVICES					DEPENDENTS	
		A NAVY	B MARCORPS	C ARMY	D AIR FORCE	E OTHER U.S.	F NAVY	G MARCORPS
01	OUTPATIENT VISITS	552	92					
02	INPATIENT VISITS							
03	ADMITTED TO QUARTERS	18						
04	QUARTERS PATIENT DAYS	23						

		DEPENDENTS				SPECIAL CATEGORIES		
		A ARMY	B AIR FORCE	C OTHER U.S.	D RET/DEC	E RETIRED	F U.S. CIV	G OTHER
05	OUTPATIENT VISITS							
06	INPATIENT VISITS							

SECTION II – ADJUNCT SERVICES

		A OUTPATIENT	B INPATIENT		C OUTPATIENT	D INPATIENT
07	LABORATORY TESTS	18		PHARMACY UNITS	546	
08	PULMONARY FUNCTION STUDIES			X-RAY FILM EXPOSURES	2	
09	AUDIOGRAMS			DIALYSIS PROCEDURES		
10	COBALT/CESIUM			EEGs		
11	ECGs			FLUOROSCOPIC EXAMS		
12	RADIOISOTOPE STUDIES			RADIUM & RADIOISOTOPE THERAPY		
13	OTHER DEEP THERAPY					

SECTION III – OTHER SERVICES

	OPHTHALMOLOGY					MISCELLANEOUS			
	A REFRACTION MC	B REFRACTION MSC	SPECTACLES ORDERED C SINGLE	SPECTACLES ORDERED D BIFOCAL	E FABRICATED SINGLE VIS	F FLIGHT PHYS EXAM	G OTHER COMP PHYS EXAM	H IMMUNI-ZATIONS	I LIMITED SERVICES
14			8					340	60

SECTION IV – SELECTED DATA

	A FETAL DEATH	B	C	D PEAK CENSUS
15				

SECTION V – ACTIVE DUTY AVERAGE STRENGTH

	E NAVY	F MARCORPS	G ARMY	H AIR FORCE	I
15	282	160			

SECTION VI – INDIVIDUAL CLINIC/SERVICE WORKLOAD

		A LIMITED SERVICES	VISITS B OUTPATIENT	VISITS C INPATIENT		D LIMITED SERVICES	VISITS E OUTPATIENT	VISITS F INPATIENT
16	ALLERGY				ANESTHESIOLOGY			
17	CARDIOLOGY				CHEST DISEASE			
18	DERMATOLOGY				EMERGENCY ROOM			
19	ENDOCRINOLOGY				GASTROENTEROLOGY			
20	GENERAL MEDICINE				GENERAL PRACTICE			
21	GENERAL SURGERY				GYNECOLOGY			
22	HEMATOLOGY				NEUROLOGY			
23	NEUROSURGERY				OBSTETRICS			
24	OCCUPAT. THERAPY				OPHTHALMOLOGY			
25	ORTHOPEDICS				OTORHINOLARYNGOLOGY			
26	PEDIATRICS				PHYSICAL THERAPY			
27	PLASTIC SURGERY				PODIATRY			
28	PROCTOLOGY				PSYCHIATRY			
29	PSYCHOLOGY				THORACIC SURGERY			
30	UROLOGY							

PLATE NO. 22113 (1)

FIGURE 2. Side one

SECTION VII – OUTPATIENT MORBIDITY – NEW CASES – ACTIVE DUTY NAVY AND MARINE CORPS

	A RESPIRATORY	NO. NEW CASES	B VENEREAL	NO. NEW CASES	C DRUG AND ALCOHOL USE	NO. NEW CASES
31	INFLUENZA	16	GONORRHEA	23	ALCOHOL	
32	PHARYNGITIS–TONSILLITIS	23	SYPHILIS		MARIHUANA	
33	U.R.I.	82	CHANCROID		NARCOTIC DRUGS	
34	OTHER RESPIRATORY DISEASES	15	LYMPHOGRANULOMA VENEREUM		NON-NARCOTIC DRUGS	
35	HAY FEVER/ASTHMA	4	GRANULOMA INGUINALE		COMBINATION	
	SKIN		GENITOURINARY		GASTROINTESTINAL	
36	PYODERMA	3	NON-GONOCOCCAL URETHRITIS		FOOD POISONING	
37	CELLULITIS		HEMATURIA		DIARRHEA	2
38	DERMATOPHYTOSIS		PYURIA		OTHER G.I. CONDITIONS	12
39	ALLERGIC DERMATITIS	1	OTHER G.U. CONDITIONS			
40	OTHER SKIN DISEASES	45				
	OTHER		ACCIDENTS AND TRAUMA		PARASITIC INFESTATION	
41	ADVERSE EFFECTS OF IMMUNIZATION		BATTLE CASUALTY		INTESTINAL PARASITES	
42	ADVERSE EFFECTS OF MEDICATION		EFFECTS OF HEAT, LOCAL		PEDICULOSIS	2
43	BEHAVIORAL CONDITIONS	1	EFFECTS OF HEAT, SYSTEMIC	1	SCABIES	
44	FEVER OF UNDETERMINED ORIGIN	1	EFFECTS OF COLD			
45	GERMAN MEASLES		AUTOMOBILE			
46	MUSCULOSKELETAL COMPLAINTS		MOTORCYCLE/SCOOTER/BIKE			
47	OBESITY		SHIPBOARD	36		
48	OTITIS EXTERNA	7	OTHER ACCIDENTS OR INJURIES	3		
49	OTITIS MEDIA	5				

REMARKS Penicillin Resistant Gonorrhea - 3 Dental Referrals - 195 Sea Sickness - 15
Headache - 7 Conjunctivitis - 2

Other GI conditions consisted of:
Nausea/Vomiting - 2
Gastritis/Ulcer - 6
Constipation - 1
Hemmorhoids - 2
Unspecified - 1

Other Skin Diseases consisted of:
Fungal Infection (Tinea) - 24
Wart Removal - 1
Acne - 5
Cyst - 2
Unspecified - 11

Accidents/Trauma consisted of:
Open wound/Laceration - 17
Foreign body/eye - 1
Sprain/Strain - 4
Bruise - 2
Burn (heat) - 7
Other - 3

SIGNATURE AND TITLE	DATE SUBMITTED
Naval Health Research Center	11/22/78

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FIGURE 2. Side two

social security number and to forward to the Naval Health Research Center (NHRC) the ship's diary which is completed monthly and contains information on transfers to and from the ship.

After the initial briefing to explain the purpose of the study to the ship's senior officers, a second briefing was scheduled with the entire medical department. At this time, detailed written and verbal instructions were given for use of the MTR. The NHRC briefing team answered any questions and requested that the written instructions be posted where they could be referred to easily if future questions arose.

For the first two weeks, the Medical Treatment Reporting System was used in addition to all other existing medical recordkeeping procedures. This overlap was meant to insure accurate recordkeeping during the initial training phase and to provide a check on the accuracy of information provided by the MTR. A follow-up session after the first two weeks provided an opportunity to resolve any problems and for NHRC researchers to answer any questions about the form or its use. After this final instruction and briefing period, the previously used illness reporting procedures were suspended.

MONTHLY MEDICAL TREATMENT REPORT TALLY
SHIP CODE ** 57 ** FEBRUARY

TOTAL VISITS BY PAY GRADE = 100

E1	E2	E3	E4	E5	E6	E7	E8	E9	ENS	LTJG	LT	LCDR	CDR	CAPT	ADM
5	12	42	26	7	4	0	1	0	2	1	0	0	0	1	0

TOTAL VISITS BY DIVISION = 100

1ST	2ND	3RD	4TH	A	B	M	E	R	H
2	10	4	0	0	0	19	2	17	0
OC	OS	OE	OI	X	SPLY	NAV	AVIA	MAR	OTH
0	0	0	14	2	17	0	0	8	5

TOTAL NUMBER OF ACCIDENT REPORTS FILED - 6

INJURIES ABOARD - 2 ASHORE - 0
INJURIES ON DUTY - 2 OFF DUTY - 0

DISPOSITION TOTAL BY DUTY
TOTAL PEOPLE - 99 TOTAL DAYS - 36

FULL DUTY	89	0
LIGHT DUTY	3	29
NO DUTY	7	7
EVACUATED	0	0

ADJUNCT SERVICES:

LAB TESTS	PHARMACY UNITS	FILM EXPOS
8	79	1

TYPES OF TREATMENTS PROVIDED (TOTAL) 108

NO TREATMENT	2
EARPLUGS	3
LAB TEST(S)	8
PHYSICAL/EYE/HEARING EXAM	0
SURGERY/SUTURE PROCEDURE	4
CAST/SPLINT/ACE WRAP	1
DRESSING	18
EYEGLASSES	0
PRESCRIPTION (S)	64
X-RAY (S)	1
REFERRAL TO ANOTHER FACILITY	7

BODY PARTS BY THE TYPE OF ACCIDENT/TRAUMA

	1ST VISITS	FOLLOW UPS
TOTAL	10	6
OPEN WOUND/LACERATION	6	0
EYE - 2		
SCALP - 1		
FINGER - 2		
HAND - 1		
BRUISE	2	0
FINGER - 1		
FOOT - 1		
BURN (HEAT)	2	6
HAND - 2		

TOTAL ILLNESSES BY CATEGORY (1ST VISIT AND FOLLOW UP CASES)

	1ST VISITS	FOLLOW UPS
RESPIRATORY (TOTAL)	31	0
INFLUENZA	2	0
PHARYNGITIS/TONSILLITIS	4	0
URI/COMMON COLD	24	0
OTHER RESPIRATORY	1	0
EYE/EAR/NOSE (TOTAL)	7	0
CONJUNCTIVITIS	2	0
OTITIS MEDIA	1	0
NOSEBLEED	1	0
OTHER EYE/EAR/NOSE	3	0
GASTROINTESTINAL (TOTAL)	2	0
DIARRHEA	2	0
SKIN (TOTAL)	10	9
PYODERMA/BOIL/ABCESS/CARBUNCLE	1	1
CELLULITIS	2	6
FUNGAL INFECTION(TINEA)	1	2
ACNE	2	0
CYST	1	0
SCABIES	2	0
OTHER SKIN	1	0
GONORRHEA (TOTAL)	1	0
GONORRHEA	1	0
VD/GU (TOTAL)	10	4
NON GONOCOCCAL URETHRITIS	7	4
OTHER VD/GU	3	0
OTHER MED PROBLEM (TOTAL)	8	3
OTHER UNLISTED CONDITION	8	3

MAN DAYS AFFECTED BY ILLNESS CATEGORY

TOTAL DAYS AFFECTED - 36

RESPIRATORY (TOTAL)	5	
INFLUENZA		1
PHARYNGITIS/TONSILLITIS		2
URI/COMMON COLD		2
SKIN (TOTAL)	14	
PYODERMA/BOIL/ABCESS/CARBUNCLE		14
VD/GU (TOTAL)	14	
OTHER VD/GU		14
OTHER MED PROBLEM (TOTAL)	2	
OTHER UNLISTED CONDITION		2
ACCIDENTS/TRAUMA (TOTAL)	1	
OPEN WOUND/LACERATION		1

WEEKLY TOTALS BY ILLNESS CATEGORY

TIME PERIOD	INCID TOTAL	NUMBER DAYS AFFECTED	RESP	EEN	GASTRO	SKIN	VD	TRAUMA	OTHER
1/29- 2/04	4	0	4	0	0	0	0	0	0
2/05- 2/11	33	1	10	4	2	1	5	4	7
2/12- 2/18	12	4	5	1	0	0	4	1	1
2/19- 2/25	37	29	10	2	0	12	6	7	0
2/26- 3/04	15	2	2	0	0	6	0	4	3
TOTAL (S)	101	36	31	7	2	19	15	16	11

FIGURE 3

Use of the Medical Treatment Reporting System

The actual use of the Medical Treatment Reporting System is straightforward. When an individual reports to the ship's medical facility for treatment, he is given the MTR and asked to fill in his name, social security number, rate, division assignment, and name of the ship. He is asked also to indicate the date and the number of previous visits for treatment of the same condition. Finally, if injured, he is asked to indicate whether the injury happened on or off duty and whether aboard ship or ashore. This portion of the form is normally completed by the patient while waiting to see the corpsman or doctor.

The remainder of the form is completed by the corpsman or doctor providing treatment. By simply marking the appropriate boxes, the corpsman describes the reason(s) for the visit, the treatment(s) provided, and the disposition of the case. Spaces for write-in comments are provided to indicate unusual conditions or symptoms not otherwise covered and to describe the circumstances surrounding any injury or accidental trauma.

The two copies of the completed form are then separated. The original is stored until the end of each month when it is mailed to the Naval Health Research Center. The second copy when filed by date in a loose-leaf binder provides medical department personnel with a detailed daily sick call log. The carbon copy may function also as a shipboard accident report which is sensitive to patterns of minor occupational injuries that might not be evident with other reporting systems. For example, the MTR might help the corpsman detect patterns of minor injury which are not severe enough to require a normal accident report.

At the end of each month, the corpsman collects the originals of the MTR, includes a brief form describing average monthly crew strength and the number of inoculations given, and forwards the package to the Naval Health Research Center. When the completed MTRs arrive at the Center, they are reviewed for completeness of information. In addition, hand-written information is recoded into an optical scanning format. Once these preliminary steps have been completed, the MTRs are ready to be machine processed to provide whatever summary information is desired.

The time between mailing the MTRs by the ship's medical personnel and the availability of summary information has been three to five weeks. Most of this time is time in transit (normally about two weeks). Further, the actual time to process the reports at the Center has steadily decreased so that an average turn around of one week appears to be standard, if mailing time is disregarded.

Reporting Formats

To date, summary morbidity information has been provided in two basic formats. The first of these has been the Monthly Medical Services and Outpatient Morbidity Report (NAVMED 6300/1) prepared for the Naval Medical Data Services Center in Bethesda, Md.; copies of this form are also sent to each ship in the study. An example of this type of summary is shown in Figure 2.

A second monthly illness summary is returned to the ship's medical department. An example of this format is shown in Figure 3. This latter format provides at a glance a summary of the number of illness episodes for each paygrade and for each division. Additional tables indicate the number of first visit and followup visits for each type of illness. Also summarized are man-days affected in terms of "No Duty" and "Light Duty" assignments. Finally, weekly summaries are shown to capture variations in illness episodes and man-days lost.

Because of the detailed nature of the basic information used by this system, the summary formats are extremely flexible. For example, illness information may be presented in time frames that parallel shipboard operating schedules, at-sea versus in-port periods, and so forth. Further, illness episodes may be summarized readily in terms of occupational rating or other categories of interest.

Summary

A prototype outpatient medical treatment recording system for shipboard use was described. Although this system has been in use only a few months on a small number of ships, it appears to combine a flexibility of use with a basic ease of administration. In fact, reports to date from the ships using this system indicate that it saves each ship's medical department from one to three man-days per month that were previously spent in completing routine medical record forms. This combination of ease and flexibility suggests that a system of this type might some day form the nucleus of a Navy-wide system of shipboard medical treatment recordkeeping that is equally responsive to the needs of the health care practitioner, the long-term planner, and the medical administrator. The demonstrated viability of the system described here in preliminary trials is considered encouraging and should lead to more extensive feasibility and cost effectiveness studies of implementing a similar system on a larger scale.

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Sea Wasp Incident at NAVCOMMSTA H.E. Holt

LT David G. Detert, MC, USNR

On 14 March 1978 at approximately midnight, a 38-year-old chief radioman, while standing in approximately 18 inches of water in the Indian Ocean, felt a large soft mass brush against his right leg. Being a very experienced diver and knowledgeable concerning the sea, he immediately left the water and washed the leg with fresh water, taking care not to rub the area of contact. In spite of these efforts there was an almost immediate onset of excruciating pain in the right foot which rapidly migrated cephalad. He was rushed at high speed to the dispensary and while in transit began to experience respiratory difficulty. Upon arrival at the dispensary, approximately seven minutes after the initial contact, he was mildly cyanotic and in extreme agony. Epenephrine 1 cc IM was immediately given by the duty corpsman and oxygen by mask begun.

The medical officer arrived at the dispensary within the next five minutes to find the patient writhing in agony and requiring forcible restraint for control. A rapid initial evaluation revealed a BP = 165/95 P = 110—120 RR = 30. His lungs were clear to auscultation. The cardiac examination revealed only the tachycardia and the remainder of the examination was negative except for board-like rigidity of the abdomen.

The only area of contact with the then unknown agent was represented by an area of erythema 3 cm in diameter on the dorsum of the right foot. Cardiac monitoring was immediately begun and the patient was given Decadron 10 mg IV, Valium 10 mg IV and Demarol 100 mg IM, and 50 mg IV in rapid succession.

In approximately five minutes the patient's thrashing had subsided sufficiently to allow placement of an IV. During this time his vital signs and his EKG remained unchanged. The area of contact on his foot was washed with 130 proof alcohol. He was subsequently transported to the local hospital where he required Demarol 125 mg IM every 4 hours for the next 30 hours to control the pain. He also received 100 mg of Hydrocortisone IV every 2 hours for 24 hours. No other lesions other than the area on the dorsum of the right foot were found. The patient had a near total amnesia of the first few hours of the incident and was plagued by severe pruritis of the affected skin. No other residual effect was noted.

The morning following the incident, six large jellyfish were found on the same beach and were identified as a species of sea wasp by local experts. Photographs were taken and sent, along with a summary of events to experts in this field in Australia—Surgeon Command John Clift, Royal Australian Navy, Dr. Carl Edmonds, and Mr. R. Endean.

The opinions concerning this case varied, but the general agreement was that this technically represented a sea wasp sting due to *Carybdea alata,* which is less dangerous than a species of the same family as the most toxic species, *Chironex fleckeri.* The failure to recover the actual organism involved prevented an absolute diagnosis.

As discussed in Dr. Carl Edmonds' *Dangerous Marine Animals of the Indo-Pacific Region,*(*1*) the sea wasp is a member of the order *Gubomedusae* of the phylum *Coelenterata* and is said to be the most venomous marine animal known. The sea wasp possesses a box-shaped body 20 cm on a side with up to 15 tentacles measuring a maximum of 3 meters in length on each of its pedalium. The animal is essentially invisible in its natural habitat and tends to mature to a more toxic state during the hot summer months which in this area of Australia is November to March. The effects of the sea wasp are due to two toxins both of which are cardiotoxic and one of which is hemolytic as well. The classi-

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Sea wasp or Carybdea alata

cal sequence of events includes the immediate onset of excruciating pain which rapidly intensifies and is followed by mental impairment including amnesia for the event. The cardiovascular effects are characterized by alternating tachycardia-bradycardia, hypertension-hypotension, tachypnea-absence of respiration as well as respiratory distress, pulmonary congestion, and cyanosis. Death generally occurs within the first 10 minutes and survival is likely after the first half hour. Residuals of the sting include pruritis at the site of contact and psychological maladjustment which may take weeks or months to resolve. The particular species involved in this incident, *Carybdea alata* or *Tamoya,* has not caused any known fatalities but is potentially fatal when small children are involved and must be considered very dangerous.

NAVCOMMSTA Harold E. Holt is located at the extreme southern border of the normal range of the sea wasp, and its rarity in this locale is indicated by the fact that only two other possible cases, both much less certain than this present one, have been reported during the recorded history of the North West Cape. A possible explanation for the occurrence in this past year was the absence of a cyclone which would normally destroy the sea wasp before they reach this southern extreme. It was, in retrospect, a very harrowing experience and certainly not one covered during internship or during operational medicine lectures conducted by the Navy.

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The Role of Altering Occlusion in Myofascial-Pain Dysfunction Syndrome Therapy

LT Allen D. McCorkle, DC, USNR

Myofascial-pain dysfunction (MPD) syndrome is a disorder of the stomatognathic system characterized by: facial pain, tenderness of the muscles of mastication, limitation or deviation of mandibular movement, popping or clicking of the temporomandibular joint (TMJ). Furthermore, local and systemic disease processes must be ruled out.(*4,16,24,32,37*) The symptoms are attributed to masticatory muscle spasm and fatigue.(*6,16*) Patients come from a wide, heterogeneous sociologic background; however, females outnumber males five to one.(*1,4,5,13,14,37*) All age groups are represented but most patients are from 20 to 40 years of age.(*4,13,14,37*)

There are other names for the above syndrome including TMJ pain dysfunction, TMJ syndrome, mandibular dysfunction, and dysfunctional TMJ and muscle pain.(*3,8,13,14,19,21,29,35,36*) There are also other symptoms often attributed to MPD syndrome such as otalgia, tinnitus, paresthesia, photophobia, and vertigo.(*8,13*)

The diagnosis is made by questionnaire, history, clinical exam, radiographic survey, and necessary laboratory data.(*1,2*) Most patients' chief complaint is pain or tenderness. However, subclinical MPD syndrome may be detected by screening during routine exams or questionnaire.(*1,16,29*) The incidence of MPD syndrome is unclear due to the variety of names of the syndrome and the variety of symptoms reported.

Occlusal discrepancies may be implicated as an etiologic factor in MPD syndrome and therefore altering occlusion is sometimes selected as appropriate treatment. There are several methods to alter occlusion. They can be divided into two major categories: reversible, including night guards and occlusal splints; irreversible, including occlusal adjustment; TMJ surgery; orthognathic surgery; orthodontics; fixed and removable prosthodontics.(*3,12,13,14,21,26,30,34,36*) The decision to alter the occlusion should be based on the etiology of MPD syndrome. Unfortunately, this is not always the case. The rationale for altering occlusion is based on empirical observations of MPD patients treated by altering occlusion with resultant improvement.(*12,14,21,26,36,38*)

There are several etiological theories of MPD syndrome.(*16,21,22,24,26,36*) Selection of treatment for MPD syndrome patients depends upon the practitioner's theory of etiology. The theories vary in regard to the interaction of the patient's occlusion and psychological state. Fundamentally, these can be divided into two groups. One group believes that the primary etiologic or contributing factor is occlusal discrepancies, and therefore selects to irreversibly alter occlusion to alleviate the patient's symptoms.(*6,13,14,21,26,30,36,38*) The other group believes that the primary etiologic or contributing factor is psychological stress and therefore directs therapy at patient education and/or psychological counseling, in addition to medication and reversible alteration of the occlusion.(*3,7,10,12,16,20,23,25,31,33*)

Electromyographic analysis of masticatory muscles in MPD syndrome and bruxism patients have shown that electromyographic (EMG) levels improve after reversibly altering the occlusion.(*3,13,34*) Occlusal adjustment was used to irreversibly alter occlusion in one study which also showed improvement in EMG levels after occlusal adjustment.(*26*) Clinically, symptoms improved after either treatment; therefore altering occlusion does contribute to the remission of muscle spasm and its resultant symptoms. However, this does not necessarily demonstrate cause and effect in order to determine the primary etiologic factor.

Surveys of patients with MPD syndrome and randomly selected healthy patients have shown that occlusal discrepancies are distributed equally between

Dr. McCorkle wrote this article while a resident at the Portsmouth Naval Hospital and a dental officer at the U.S. Naval Base branch clinic, Guantanamo Bay. He is presently a resident in pediatric dentistry at Virginia Commonwealth University, Richmond, Va.

both groups.(*4,35*) There is also an equal distribution of malocclusion between the sexes despite the five to one predominance of females to males with MPD syndrome.(*5*) A survey of 153 healthy patients has shown the incidence of occlusal habits is higher in patients with headaches and neck aches, incidence of mandibular deflection, pain on palpation, TMJ noise, and TMJ radiographic changes. When compared in subgroups, each shows approximately equal distribution to the incidences in the total population examined.(*27,28*) The above would seem to indicate that how one uses his mandible is more significant than occlusal relationships as an etiologic factor in MPD syndrome.(*37*)

The personalities of 75 female MPD syndrome patients were compared with dental patients, rheumatoid arthritis patients, healthy individuals, and a group of neurotic and psychotic patients and found to be significantly different from each group. Seventy-five percent of the MPD syndrome patients fell into hypernormal, dominant personality categories.(*19*) These are people who want to maintain control of their situation and resist demonstrating illness or weakness. A group of 21 MPD syndrome patients and 10 normal individuals were experimentally stressed. The normal people responded with a greater increase in heart rate than the MPD syndrome patients, while the MPD syndrome patients responded with increased masticatory muscle activity.(*15*) While the above does not show cause and effect, the data does support the theory that the primary etiologic factor of MPD syndrome is psychological stress.

Recently, several double blind studies with placebos for controls of different therapies for MPD syndrome have shown that symptom remission is not a simple cause and effect result. MPD patients respond significantly to placebo drugs, placebo occlusal splints, and placebo occlusal adjustments. Symptom remission in MPD syndrome patients is a complex interaction among the patient, the dentist, and the treatment.(*9, 11,12,17,33*)

Therapy utilizing principles of psychology have been shown to be effective in the treatment of MPD syndrome patients. Teaching the patient to voluntarily relax his masticatory muscles by providing him with an increased awareness of his oral habits with biofeedback or massed muscle exercises results in decreased EMG levels and consequently improvement in symptoms.(*7, 31*) Psychological counseling or educational instruction plus medication and dental treatment (Meprobamate and an occlusal splint), is more effective than dental treatment alone, and comparing psychological counseling with dental treatment, equal results are obtained.(*18,20*) Group therapy for MPD syndrome patients in which conventional therapy has not been successful has been shown to be helpful. Symptom remission in these patients is related to their increased ability to cope with their emotions, recognition of an unrealistic self concept, or a specific change in their environment.(*23,25*)

Successful treatment of MPD syndrome patients depends on an accurate diagnosis. There are several causes of masticatory muscle spasm including muscular overextension, muscular overcontraction, or muscular fatigue. Muscular fatigue is the result of an oral habit which may be secondary to psychological stress or dental irritation.(*16*) In addition to an accurate and thorough history and exam, a psychological evaluation is essential to institute effective therapy.(*10*) Reversibly and/or irreversibly altering occlusion can be used to treat muscular overextension, muscular overcontraction, or dental irritation when these are identified as etiologic factors for the patient. In addition to physical therapy, tranquilizers, analgesics, muscle relaxants, and counseling, reversibly altering occlusion is helpful in relieving symptoms in patients with MPD syndrome secondary to psychological stress until a patient can learn to cope with his environment. It is important to consider each MPD syndrome patient individually and treat each one according to an accurate diagnosis. If this approach is used, patients would probably be subjected to fewer irreversible procedures and dentists would enjoy a higher success rate in treating MPD syndrome patients, recognizing that the most common etiology for MPD syndrome is psychological stress.

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GUIDELINES FOR EARLY DETECTION OF ALCOHOLISM

Physical clues	
Gastrointestinal	vomiting (often before breakfast); nausea; dysphagia; diarrhea; vague abdominal complaints
Neurologic	blackouts; insomnia; headaches
Cardiovascular	palpitations; tachycardia
Traumatic	frequent accidents; falls or injuries of vague origin; cigarette burns on hands, chest
Psychological clues	
Behavioral	frequent financial difficulties; excessive absenteeism and poor performance at work; marital discord or multiple divorces; immoderate use of coffee, tea, tobacco, drugs
Emotional	anxiety; panic attacks; hallucinations; depression, suicidal ideation
Laboratory findings	hyperlipidemia; abnormal liver and/or kidney function; anemia; blood alcohol of 0.15 percent (almost pathognomonic for alcoholism)

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ACDUTRA With the Marine Corps

LT T.M. Cox, MSC, USN

"During the first maneuver, a fighter plane buzzed in . . . , he dove on us four times. My squad, Bravo 5, dug in on a defensive front and absolutely annihilated an unsuspecting enemy. On the offensive maneuver, our leader sent a scout up ahead to throw smoke grenades. I was given his M-16 and helmet—I became a Marine Rifleman! We circled the enemy and attacked from the rear—the enemy never had a chance—we nailed them. We ate C-rations for dinner."

The above quotation was not taken from an article about an actual war, but rather from the diary of a medical student performing his 45 days Active Duty for Training under the Armed Forces Health Professions Scholarship Program. The training was conducted at the Basic School, Marine Corps Base, Quantico, Va.

In 1979, the commanding officers of the Naval Health Sciences Education and Training Command, Naval Hospital, Quantico, Va., and The Basic School, Quantico, Va., developed and implemented a course of instruction for HPSP students designed to expose participating students to the mission, capability, and expertise of the modern Marine. Additionally, the student would learn about one facet of the Navy Medical Department's mission—medical support to the Marine in the field.

During their first two weeks, the students undergo training at the Basic School in areas of physical training, tactical maneuvers (both day and night), obstacle courses, weaponry, survival swimming, and the organization and mission of the Marine Corps. The HPSP students, assigned to a Marine company composed of Marine second lieutenants and Naval Academy graduates, actively participate in all training phases during the two-week period.

Students practice survival swimming in the pool.

The student's last month of active duty is spent providing, under close supervision, medical support to Marines in the field at the Basic School, Camp Upshur, and at Brown Field. In addition, each extern is assigned a staff physician as his preceptor. Contingent upon patient load, each physician will spend as much time as possible teaching the new officers basic diagnostic techniques, appropriate treatment for military associated diseases and injuries, and such other medical subjects as he feels appropriate.

The course is offered once annually during the summer months. The program is open to any second, third, or fourth year medical student participating in the HPSP who has completed the Officer Indoctrination Course at Newport, R.I., or who has had prior military experience. Interested persons should contact LT T.W. Cox, Naval Health Sciences Education and Training Command (Code 9), National Naval Medical Center, Bethesda, Md. 20014.

LT Cox is Director of the Health Professions Scholarship Program, HSETC (Code 9).

NOTES & ANNOUNCEMENTS

IN MEMORIAM

RADM *Thomas W. South II*, USN (Ret.), who served 35 years in the Navy, died 23 Oct 1979 at the age of 69.

RADM South was born in Philadelphia, Pa., and graduated from the U.S. Naval Academy in Annapolis, Md., in 1934. He then became a Navy pilot. RADM South served in the Pacific during World War II and later commanded the aircraft carrier USS *Essex*. He was assigned to the Office of the Chief of Naval Operations in Washington, D.C., from 1946 to 1949, from 1954 to 1956, and from 1960 to 1963. RADM South commanded the Patuxent Naval Air Station in Maryland from 1957 to 1959. He also commanded a carrier division of the 7th Fleet in the Pacific from 1959 to 1960.

RADM South retired in 1965.

MASTER'S DEGREE IN RADIOBIOLOGY

Opportunities are now available for medical officers to obtain a master's degree in radiobiology on an outservice basis. The program is offered at the University of Rochester which has long been recognized as a leading institution in this field.

The University of Rochester has two programs of study for a master's degree, Plan A and Plan B. Plan A is considered more appropriate for physicians with its more practical, less theoretical emphasis. Plan B requires 30 semester hours and a master's degree essay (vice thesis). This program would usually take a year and a half to complete.

The payback time for the master's degree is in accordance with BUMEDINST 1520.7F. For example, if one needed a year and a half to two years to complete the program, the payback time would be two years.

Billets for this training are available in the summer/fall, 1980. For further details, write: Bureau of Medicine and Surgery (MED 3C21), Washington, D.C. 20372 or call: Autovon 294-4194, Commercial (202) 254-4194.

NEW DIET MANUAL

After five years of extensive research, the Navy and Air Force have developed a biservice diet manual, AFM 160-8/NAVMED P-5125, for use in all Navy and Air Force medical facilities. Each Navy inpatient medical facility must maintain an up-to-date diet manual as prescribed by the Joint Commission on Accreditation of Hospitals (JCAH).

The manual serves not only as a practical reference in planning, ordering, preparing, and serving normal and therapeutic diets, but also provides a thorough discussion of the principles of each diet. Noncopyrighted material may be reproduced for patient education.

New material includes the 1979 recommended daily dietary allowances, the 1976 revised diabetic diet exchange system, protein-electrolyte restricted diets, hyperlipoproteinemia diets, and nutritional assessment.

An extensive appendix provides data on nutrient composition of supplements, therapeutic diet recipes, vitamin and mineral concentrations in foods, and educational materials for professional and patient references.

Initial distribution of the new manuals will be accomplished automatically. Additional requests should be addressed to Bureau of Medicine and Surgery (MED 3112), Washington, D.C. 20372.

NAVY GRADUATE MEDICAL EDUCATION

SAC XI has completed deliberations for over 630 applicants for Navy Graduate Medical Education. The statistical data will be published in a later issue of *U.S. Navy Medicine*.

All medical officers interested in applying for Navy Graduate Medical Education Training beginning July 1981 should begin their application process as soon as possible to prevent unnecessary delays in administrative procedures.

BUMEDINST 1520.10G dated May 1976 presents proper application procedure.

Those who have previously applied for training and have information on file at the Bureau of Medicine and Surgery may state this in their application. (Dean's letter, transcript, etc.) under item 3.

It is anticipated that all medical officers in operational assignments will receive BUMED Notice 1520 announcing Graduate Medical Education availability by 1 May 1980; however, if information is presently available to you, an early application is encouraged. The deadline for application will be 15 Aug 1980. Applications received after this date will be difficult to complete in time for the Specialty Advisory Committee which will convene in September 1980.

Information on Navy GME for 1981 may be obtained by writing to: Commanding Officer, Naval Health Sciences Education and Training Command, Attn: Code 4, National Naval Medical Center, Bethesda, Md. 20014. Telephone: Autovon 295-0648, Commercial (202) 295-0624.

BUMED SITREP

SURGICAL POSTGRADUATE SEMINAR

The Society of Air Force Clinical Surgeons is sponsoring a surgical postgraduate seminar to be held 13-16 April 1980 at the Convention Center of the Four Seasons Motor Inn, Colorado Springs, Colo.

The seminar will be approved for AMA Category I credit.

COL Clint Chambers, MC, USAF, chairman, Department of Surgery, USAF Medical Center/SGHS, Wright-Patterson AFB, Ohio 45433, has been designated the program chairman and all communications regarding the seminar should be addressed to him. The name and address of the individuals who will attend should be forwarded to the program chairman. A copy of this information should also be sent to HQ AFMP/SGEP, Randolph AFB, Tex. 78148.

NEED FOR CANDIDATES IN SPECIFIED NEC'S

Eligible candidates are urgently needed to fill training requirements in the following NEC's:

HM 8451 (X-ray Technician, Basic)
HM 8482 (Pharmacy Technician)
HM 8503 (Histopathology Technician)
HM 8505 (Cytotechnology Technician)

The submission of applications is encouraged with reference to CANTRAC (NAVEDTRA 10500) which outlines the application procedure and respective eligibility requirements.

SUITABILITY PROCESSING FOR OVERSEAS ASSIGNMENT OF NAVY AND MARINE CORPS MEMBERS AND ACCOMPANYING DEPENDENTS

BUMEDINST 1300.1, effective 4 Dec 1979, provides a listing of U.S. Federal medical facilities outside the contiguous 48 States and procedures to be followed in facilitating the suitability processing for overseas assignment of Navy and Marine Corps members and their dependents. Reports have indicated that numerous active duty members and accompanying dependents have arrived at new duty stations overseas with medical conditions which were beyond the treatment capabilities of the Medical Department facility serving them. The provisions of BUMEDINST 1300.1, when followed, will obviate the transferring of such personnel and dependents to activities overseas that do not possess the capability to provide needed care.

MEDICO-LEGAL FEEDBACK: TAD ORDERS FOR TRAINING PROGRAMS

On occasion it has been necessary to document the official status of a physician involved in outservice training or an "integral part" of inservice training for purposes of invoking the protection of the "Gonzales" immunity law. On several occasions there has been no documentation of that status.

Commands should insure that all persons performing official duties in a civilian setting are given, at a minimum, no-cost TAD orders that clarify the fact that their working in the civilian institution is within the scope of their military duties. Without such proof it might be difficult to obtain Justice Department representation of a person in the event a medical liability case arose.

CHAMPUS CAT SCAN COVERAGE INCREASE

An expansion of CAT Scan coverage for CHAMPUS beneficiaries will be implemented in early 1980.

The proposed change in CHAMPUS policy for CAT Scan procedures was announced in the *Federal Register* in late October and will be implemented as a formal change in CHAMPUS policy following consideration of solicited public comments which are now under review. The proposed change in CHAMPUS policy would authorize whole body scans and set new guidelines for determining quality of care and medical necessity associated with CAT Scan services.

CAT Scanning (Computerized Axial Tomography scanning) is a form of computer assisted radiation photography developed in recent years which permits viewing of soft tissue in the body in a manner similar to x-ray photography of the body's bone structure. CAT Scans were originally used principally for examination of the brain. Whole body scans are a more recent development. Among the advantages of CAT Scanning are the elimination of possible dangers to the patient associated with dye testing and x-ray procedures.

Current CHAMPUS policy limits coverage to head scans and limits the type of authorized medical care facility at which CAT Scans may be obtained.

Upon implementation of the expanded CAT Scan policy, it will be made retroactive from 1 Oct 1978.

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